

A NATIONAL INTEROPERABLE BROADBAND NETWORK FOR PUBLIC SAFETY: RECENT DEVELOPMENTS

HEARING

BEFORE THE
SUBCOMMITTEE ON COMMUNICATIONS,
TECHNOLOGY, AND THE INTERNET
OF THE
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COMMERCE
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A NATIONAL INTEROPERABLE BROADBAND NETWORK FOR PUBLIC SAFETY: RECENT DEVELOPMENTS

THURSDAY, SEPTEMBER 24, 2009

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON COMMUNICATIONS, TECHNOLOGY,
AND THE INTERNET,
COMMITTEE ON ENERGY AND COMMERCE,
Washington, DC.

The subcommittee met, pursuant to call, at 10:15 a.m., in Room 2123 of the Rayburn House Office Building, Hon. Rick Boucher [Chairman of the Subcommittee] presiding.

Members present: Representatives Boucher, Eshoo, Stupak, Inslee, Weiner, Castor, Murphy, McNerney, Welch, Waxman (ex officio), Harman, Stearns, Upton, Shimkus, Walden, Terry, Blackburn and Barton (ex officio).

Staff present: Roger Sherman, Chief Counsel; Pat Delgado, Chief of Staff; Amy Levine, Counsel; Tim Powderly, Counsel; Shawn Chang, Counsel; Greg Guice, Counsel; Sarah Fisher, Special Assistant; Alan DeLevie, Intern; Neil Fried, Minority Counsel; and Garrett Golding, Minority Legislative Analyst.

OPENING STATEMENT OF HON. RICK BOUCHER, A REPRESENTATIVE IN CONGRESS FROM THE COMMONWEALTH OF VIRGINIA

Mr. BOUCHER. The subcommittee will come to order.

Today we consider steps that the Congress can take to facilitate the creation of a nationwide interoperable broadband network for the first responder community. As the terrorist attacks of 9/11 and natural disasters like Hurricane Katrina starkly revealed, there are serious obstacles that prevent fire police and rescue personnel from one locality communicating with first responders from other localities when they converge on the scene of a disaster. In some instances, fire police and rescue personnel in a single locality may lack a means of interoperable communication each with the other. For almost a decade, there has been a widely expressed need to create a national fully interoperable communications network for first responders but as of today, that network remains a goal. It is not a reality.

This morning we will examine various proposals advanced by the first responder community and by commercial wireless carriers for realization of the national interoperable network. In advance of the 700 megahertz auction in 2008, the FCC crafted a plan to auction

the 10 megahertz D block of the 700 megahertz spectrum to a commercial carrier, who under the terms of the proposal would then build out the D block with the requisite telecommunications equipment. Under the terms of the auction, the winning commercial bidder would share the 10 megahertz with public safety and public safety would have priority access to that network. Those terms proved to be unattractive to the commercial carriers and in the auction the D block did not receive the auction reserve price and was not sold. It remains unsold at the present time.

A variety of proposals have been advanced since the failed D block auction about how the D block could be used to create a much needed nationwide first responder network. We will examine today the proposals and ask if any of them could result in a true nationwide network built out with the necessary wireless telecommunications equipment. The build-out of the wireless infrastructure would appear to be the largest single challenge, how to finance that, and we will focus our inquiry today on how that build-out could be financed through the various proposals that have been placed before us.

One proposal is to give the D block to public safety, and then it would be combined with the 10 megahertz of spectrum already held by the public safety broadband licensee, the Public Safety Spectrum Trust. While this option would clearly give public safety sufficient spectrum for a nationwide broadband network, it would not provide any funding for the build-out with the necessary equipment. While some contend that localities could then lease the 10 megahertz that D block received for free under the proposal to commercial entities and then apply the revenue from that lease to equipment build-out. I question whether sufficient revenue from the lease could be realized, particularly in rural areas, to finance the needed equipment purchase and installation.

Another proposal is to auction the 10 megahertz block unencumbered for purely commercial use. The proceeds of that auction would then be used to help fund the build-out of a broadband network in the 10 megahertz of spectrum currently held by the Public Safety Spectrum Trust. This proposal likewise raises questions, given that no one believes the auction would raise sufficient funds to build out a nationwide network, perhaps only realizing a fraction of the total amount that is necessary. Where could public safety find the rest of the money that is needed? Could this proposal also leave smaller and more rural areas that lack financial resources behind?

A third option is for the FCC to re-auction the D block for purchase by a commercial carrier to use in a public-private partnership with the public safety broadband licensee. However, to ensure a successful auction, that new auction would have to be restructured to address the concerns of commercial providers that resulted in the failure of a similarly structured auction in 2008. Whichever option is pursued, the most important goal is achieving a true nationwide public safety interoperability function. That means a plan that will ensure universal build-out and will not favor those areas with more resources to invest in a network over others with more limited means. The most critical question for many when determining how best to address the matter is how it will ensure that

rural areas and other financially disadvantaged regions are not left behind.

We have an historic opportunity to make our nation more secure and to give our first responders a crucial tool they urgently need, and I hope that all member will keep this fundamental goal in mind as we consider how best to proceed, and I expect that this morning we will receive outstanding advice on these matters from our panel of witnesses, and I thank them for their attendance here today.

That concludes my statement, and at this time I am pleased to recognize the ranking Republican on our subcommittee, the gentleman from Florida, Mr. Stearns.

OPENING STATEMENT OF HON. CLIFF STEARNS, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF FLORIDA

Mr. STEARNS. Thank you, Mr. Chairman, and I agree with you that we will receive outstanding testimony on what to do, and I appreciate you having this hearing on the recent developments on a national interoperable public safety broadband network.

The Digital Television Transition and Public Safety Act of 2005 cleared 84 megahertz of spectrum formerly occupied by the broadcasters in the 700 megahertz band. Now, of that spectrum, 24 megahertz was meant for first responders to use for interoperable emergency communications. The remaining 60 megahertz was supposed to be auctioned for commercial services. In mid-2007, then-FCC Chairman Kevin Martin, endorsed a proposal to require the winning commercial bidder for 10 megahertz of the spectrum, referred to as the D block, to negotiate a sharing agreement with public safety. In response, on June 29, 2007, Mr. Barton and myself along with 14 other members sent the FCC a bipartisan letter predicting that this approach would likely fail. The letter explained that commercial entities would be reluctant to bid on the D block for fear that they would fail to reach an agreement that would meet both their needs and those of public safety while still enabling them to recover their costs. So as a result, the letter concluded both the original 24 megahertz earmarked for public safety and the 10 megahertz D block would lay empty. The auction would raise less money for taxpayers and time would be wasted. The FCC ignored the advice in our letter and the auction failed as a result.

The riskiest option going forward would be for the FCC to try another conditioned auction. Notwithstanding the failure of the D block auction, the FCC issued additional notices in May and September of 2008 proposing a re-auction of the D block with public safety conditions although it sought comment on how it might revise those conditions to improve the likelihood of success this time. The FCC did not take action on the proposal before Chairman Martin left. So I am concerned that few commercial providers would want to bid even with revisions since all the winner obtains is the right to negotiate with public safety.

Most of the public safety community appears to agree that the conditioned auction approach is not worth pursuing. Instead, some argue that Congress pass a law to give the D block directly to the public safety community for free. The public safety community would then use the spectrum for construction of the nationwide

public safety network in combination with the original 24 megahertz that the DTV legislation cleared for first responders. It could do so on its own or partner with commercial entities to do so. This would do little good, however, absent funding to construct the network.

Now, another option is to use revenue from a straight commercial auction of the D block to fund a network on the 24 megahertz first responders already have. Ten megahertz of the original 24 megahertz the DTV legislation cleared for first responders could be enough for the public safety network. Many public safety officials have filed waivers with the FCC to start building networks on the spectrum they already have access to. And even if it were not enough, proponents of this approach argue that public safety could switch from narrowband voice to voice over Internet protocol and use all of the 24 megahertz for the broadband network. Cities such as New York are already indicating they are considering to do so. This approach would make more spectrum available for commercial broadband service at a time when demand is increasing but the supply of available spectrum is actually running low. This would also address the money issue, but some don't think wireless companies would be interested in building or serving the network.

So, my colleagues, no matter which option we choose to pursue, it is clear that past auction conditions do not work. We do not want to delay any further. I am glad we are having a hearing, we need to get it correct, and I look forward to hearing from our witnesses. Thank you, Mr. Chairman.

[The prepared statement of Mr. Stearns follows:]

Communications, Technology, and the Internet
Subcommittee Hearing
A National Interoperable Broadband Network for Public
Safety: Recent Developments
Ranking Member Cliff Stearns
September 24, 2009

Thank you Mr. Chairman for holding this hearing today on recent developments on a national interoperable public safety broadband network. I would like to welcome all of our witnesses and look forward to hearing their testimony.

The Digital Television Transition and Public Safety Act of 2005 cleared 84 MHz of spectrum formerly occupied by the broadcasters in the 700 MHz band. Of that spectrum, 24 MHz was meant for First Responders to use for interoperable emergency communications. The remaining 60 MHz was supposed to be auctioned for commercial services.

In mid-2007, then-FCC Chairman Kevin Martin endorsed a proposal to require the winning commercial bidder for 10 MHz of the spectrum—referred to as the D-block—to negotiate a sharing agreement with public safety. In response on June 29, 2007, Mr. Barton and I, along with 14 other Members sent the FCC a bipartisan letter predicting that this approach would likely fail. The letter explained that commercial entities would be reluctant to bid on the D-block for fear that they would fail to reach an agreement that would meet both their needs and those of public safety, while still enabling them to recover their costs. As a result, the letter concluded, both the original 24 MHz earmarked for public safety and the 10 MHz D-block would lay empty, the auction would raise less money for taxpayers, and time would be wasted. The FCC ignored the advice and blew the auction as a result.

The riskiest option going forward would be for the FCC to try another conditioned auction. Notwithstanding the failure of the D-block auction, the FCC issued additional notices in May and September of 2008 proposing to re-auction the D-block with public safety conditions, although it sought

comment on how it might revise those conditions to improve the likelihood of success. The FCC did not take action on the proposal before Chairman Martin left. I am concerned that few commercial providers will want to bid even with revisions, since all the winner gets is the right to negotiate with public safety.

Most of the public safety community appears to agree that the conditioned auction approach is not worth pursuing. Instead, some argue that Congress pass a law to give the D-block directly to the public safety community for free. The public safety community would then use the spectrum for construction of the nationwide public safety network in combination with the original 24 MHz the DTV legislation cleared for First Responders. It could do so on its own or partner with commercial entities to do so. This would do little good, however, absent funding to construct the network.

Another option is to use revenue from a straight commercial auction of the D-block to fund a network on the 24 MHz First Responders already have. Ten MHz of the original 24 MHz the DTV legislation cleared for First Responders could be enough for the public safety network. Many public safety officials have filed waivers with the FCC to start building networks on the spectrum they already have access to. And even if it were not enough, proponents of this approach argue that public safety could switch from narrowband voice to voice over Internet protocol and use all 24 MHz for the broadband network. Cities such as New York are already indicating they are considering doing so. This approach would make more spectrum available for commercial broadband service at a time when demand is increasing but the supply of available spectrum is running low. This would also address the money issue, but some don't think wireless companies would be interested in building or serving the network.

No matter which option we choose to pursue, it is clear that past auction conditions did not work. We have already wasted too much time and we cannot afford to fail again.

Mr. BOUCHER. Thank you very much, Mr. Stearns.

The gentlelady from California, Ms. Eshoo, is recognized for 2 minutes.

OPENING STATEMENT OF HON. ANNA G. ESHOO, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA

Ms. ESHOO. Thank you, Mr. Chairman, and good morning, everyone.

The public safety communications has really been a longstanding concern of mine and that is why I joined with my colleague, Mr. Shimkus, to form the E-911 caucus almost 10 years ago. It is hard to believe that it was that long ago. And during that time we worked on numerous projects to keep Americans safe and secure and to advance most importantly first responder communications at the ground level. Public safety concerns have evolved, especially since 9/11, when we were reminded in very, very stark terms that interoperability is the glue that holds together the call centers, the first responders and other emergency personnel. Interoperability is interdependent on an often scarce and valuable public resource, which is spectrum. The spectrum can provide better safety resources and employ the most advanced technological tools but the spectrum has not faced the prospect of seeing people die or being injured instead of surviving during a crisis.

The issue before us, I think, is a matter of trust, whether we trust the new commission to resolve the long-suffering D block issue through the rulemaking process, can they make the so-called restructured public-private partnership auction work. Those of us who lived through the D block false start auction do not want to go through another incarnation of that process. Twelve cities are biting at the bit trying to get at the 10 megahertz and 700 megahertz public safety broadband spectrum currently licensed to the Public Safety Spectrum Trust including the San Francisco Bay Regional Interoperable Communications System. They are shovel ready, and I think there is no reason to wait. I am not sure about the other proposals and I wonder who ultimately benefits. On the one hand, the major cities' chiefs asked for the spectrum without an auction but a number of regions might not need that much spectrum. Then we have carriers who are willing to pay big, no doubt, to get the same spectrum at auction. They claim to be willing to use funds siphoned off the top of the auction's proceeds to construct an interoperable broadband network for public safety.

So we are here today to hear from everyone. I want to know if we can move ahead now not only in my district but also what the best use is for this essential public trust. So I welcome all the witnesses and thank you, Mr. Chairman, for having the hearing and I yield back.

Mr. BOUCHER. Thank you very much, Ms. Eshoo.

The gentleman from Illinois, Mr. Shimkus, is recognized for 2 minutes.

OPENING STATEMENT OF HON. JOHN SHIMKUS, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF ILLINOIS

Mr. SHIMKUS. I thank you, Mr. Chairman, and I am honored to be followed by my colleague and friend, Anna Eshoo, who we have done great work along with the community and we look forward to continuing that effort. You have done, Mr. Chairman, a good job outlining the options we have. That is why you all are here to answer questions and testify so we can kind of help correct, how do we address this problem. So I won't reiterate that.

What I will say is that unfortunately this is an example of the—although we are interested and we are here and you are here, the intensity of the public interest in this obviously has fallen off, and with the FBI investigation going on now on an unspecified list of supposed terrorists and an unspecified target list, this room should be flooded with people because we have said numerous times, and I know Anna has, we can't sustain another failure of communication in a major catastrophe, and unless we get this D block right, that is what we are going to have. And so we have to get to it. So the chairman has outlined the options. We are going to look forward to hearing your testimony. I just like using the bully pulpit to mention to the chairman I would like to see us move on H.R. 3348, which would extend the grants program. There are some bills out there that would do that. I think that is important, something we could do now and it is well agreed to and probably could do on a suspension calendar if we could do that.

And one thing that hasn't been talked about which has been raised is the issue of a regional approach on auction issues. I know people have addressed rural concerns, and that should be part of the debate and that is what I will be looking for that also.

So with that, Mr. Chairman, thank you and I yield back.

Mr. BOUCHER. Thank you very much, Mr. Shimkus.

The chairman of the full Energy and Commerce Committee, the gentleman from California, Mr. Waxman, is recognized for 5 minutes.

OPENING STATEMENT OF HON. HENRY A. WAXMAN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA

Mr. WAXMAN. Thank you, Mr. Chairman. I want to thank you for holding this hearing and thank all of our witnesses for agreeing to come and share their knowledge and ideas on how to achieve nationwide public safety interoperability.

This is certainly the unfinished business from 9/11 and Katrina and it is an urgent matter. As the FCC commissioners recognized at our hearing last week, resolution of this issue needs immediate attention, and while the FCC will certainly play a leading role, a number of the proposals if pursued would require additional legislative action by the Congress.

During the last Congress, I was supportive of the concept of a public-private partnership and I continue to believe that some form of a public-private partnership would likely offer the clearest path to constructing a nationwide interoperable broadband network. Of course, the details of such an arrangement matter, and in light of the failure of the D block auction, we need to revisit these details.

I am encouraged by the efforts of both the public safety community and the private sector to think creatively about building this network and I am pleased to see that they have come up with a full range of ideas which we will learn more about today. I would like to thank particularly Chief Bratton of the LAPD for being with us. Thank you for being here.

As we listen to these proposals, I want you to know that there are three basic principles that I have in mind for any plan to address. First, the network or networks must be built quickly. Secondly, there must be a clear plan to ensure that deployment reaches all areas of the country including hard-to-reach rural areas and underfunded municipalities. Third, the plan should try to avoid distorting or disrupting the commercial wireless marketplace by giving an unfair advantage to certain carriers over others.

This is an important hearing, Chairman Boucher. I appreciate your holding it and it gives us an opportunity to learn more about this very important matter. To our witnesses, thank you for your participation and your testimony and look forward to the conclusion of the hearing and looking over the transcript and getting some ideas from this hearing today. I yield back my time.

Mr. BOUCHER. Thank you very much, Chairman Waxman.

The ranking Republican member of the Energy and Commerce Committee, the gentleman from Texas, Mr. Barton is recognized for 5 minutes.

**OPENING STATEMENT OF HON. JOE BARTON, A
REPRESENTATIVE IN CONGRESS FROM THE STATE OF TEXAS**

Mr. BARTON. Thank you, Mr. Chairman, and thank you for holding this hearing along with Ranking Member Stearns, and I am certainly glad that our full committee chairman, Mr. Waxman is also in attendance.

Mr. Chairman, if the FCC had listened to me, Mr. Stearns, Mr. Upton and several others several years ago, we wouldn't be having this hearing. We along with 13 other of our colleagues from both sides of the aisle, I might point out, wrote to the FCC in June of 2007 warning that placing public safety conditions on commercial use of the D block would almost certainly fail from both a public safety and a commercial perspective. Not listening, the FCC went forward anyway and botched the auction. Both the 24 megahertz cleared for public safety by the 2005 DTV legislation and the 10 megahertz D block originally intended for commercial use have been sidelined. Potential auction proceeds have been lost and 2 years have been wasted, so here we are again.

Some are proposing we simply try to the condition auction approach again. I strongly urge the FCC, and if we need to, as a sub-committee and full committee, to inform the FCC not to do that. I don't think that will work. It didn't work the first time. There is no reason to expect it will work a second time.

Passing legislation giving the D block directly to public safety for free would give them control over the spectrum, and my guess is that some of our witnesses are going to advocate that today, but that is not going to help if we don't have the money to build it out. An unconditioned commercial auction of the D block could help raise money to build a public safety network on the 24 megahertz

that the 2005 DTV legislation has already cleared for first responders. That is also a non-regulatory way to promote wireless competition and advance our broadband deployment. Some are skeptical that the commercial providers would help instruct the network and provide the service under this scenario. There are some that would also argue from an engineering perspective that 24 megahertz is not enough to create the public safety network. I hope that we have some expert testimony on that issue here today.

Here is an idea: Why don't we start by answering the engineering question first, Mr. Chairman? I am an engineer. I still have my engineering license. I am not an electrical engineer, however, so I would be worthless if they delegated that job to be but I do know how to solve a problem from an engineering perspective. Once we know what is technologically possible, then we can debate the public policy and then we can look at the politics of the public policy. All too often, whether it is here or in the network neutrality debate, we send policy wonks and bureaucrats to do what us engineers could do without the policy wonks and without the politicians. Let us get to work, Mr. Chairman. I yield back.

Mr. BOUCHER. Thank you very much, Mr. Barton.

The gentleman from Michigan, Mr. Stupak, is recognized for 2 minutes.

OPENING STATEMENT OF HON. BART STUPAK, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF MICHIGAN

Mr. STUPAK. Thank you, Mr. Chairman, for holding today's hearing on how we can achieve a national interoperable broadband network for public safety.

Last year when the D block auction failed, we convened a hearing to discuss with the Federal Communications Commission on how to move forward. Our witnesses today present us with a few options that warrant review at the FCC and I would like to know how their proposals addressed the largest hurdles to the original auction, those hurdles being the unique needs of public safety network, the high-cost areas of our country to serve like rural northern Michigan and the need for this network to reach nearly 99 percent coverage to be truly national.

A public safety network cannot operate like a commercial network. You can have a dropped call on a commercial service but a dropped call for public safety can be the difference between life and death. When disaster strikes such as a hurricane, consumers do not expect their cell service to be 100 percent intact but public safety does not have that luxury. I have made it clear that a robust, national interoperable public safety network will need federal funding to become a reality. My colleagues were split 50/50 when I offered an amendment at the DTV markup years ago to use the revenue from the 700 megahertz auction to build the network. We missed our opportunity to make progress on this critical issue then, and today we are still at first base. This year I offered an amendment that was accepted by this committee during a markup of the American Recovery and Reinvestment Act, the stimulus package, to ensure that interoperable communications needs in high-cost areas were eligible for grant funding. However, even the full amount of money in the stimulus for broadband funding would not meet the

estimated costs of a national interoperable public safety network which ranges anywhere from \$10 billion to \$20 billion.

So Mr. Chairman, I am looking forward to hearing from our witnesses. Thanks for holding today's hearing. I look forward to discussing this with our witnesses on how we can overcome these hurdles encountered by last year's auction. But I must remind the committee and everyone else, we have been talking about interoperability since 1978 with the Air Florida crash and I am sure we will be talking about interoperability in 2048 with the next disaster. I don't think we are going to make much progress but I look forward to hearing from the witnesses.

Mr. BOUCHER. Thank you very much, Mr. Stupak. Hopefully we will make some progress with all of our shared efforts.

The gentleman from Nebraska, Mr. Terry, is recognized for 2 minutes.

OPENING STATEMENT OF HON. LEE TERRY, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF NEBRASKA

Mr. TERRY. Thank you, Mr. Chairman, for holding this important hearing and thank you all, gentlemen, for being here to share your thoughts on how to solve this problem. Here we are 8 years after September 11 and we have no interoperable plan. We thought we did, but embarrassingly, the FCC failed to recognize that when you place obligations and restrictions on an asset, that you have reduced the value and therefore reduced the value to zero, so we are still in the same place we were the day after September 11.

It is extremely important that we set up an interoperable system that allows all of our first responders, our police, law enforcement agencies, fire and rescue and other agencies to all work together in a time of disaster. This includes not only the ability to talk to each other and coordinate but in today's world that also means video, which means broadband. So maybe it is a good thing that the FCC screwed it up and we made sure that we have enough spectrum to be able to do a proper job on interoperability. But let us learn from the embarrassing experience the FCC caused a couple of years ago at the D block auction. Let us move forward and let us get the right plan. We are here today to hear your ideas of how to move forward on this, and I thank you for taking your time. I yield back.

Mr. BOUCHER. Thank you very much, Mr. Terry.

The gentleman from California, Mr. McNerney, is recognized for 2 minutes.

Mr. MCNERNEY. Thank you, Chairman Boucher, for convening today's hearing. I want to thank the witnesses for coming here today to talk to us. In particular, I am glad to welcome Mr. Fontes for coming. He has roots in Manteca, California, which is in my district.

Now, there is wide agreement about the potential benefits of a national interoperable public safety network. My district not only is home for Mr. Fontes but also for some of the most active earthquake faults in North America. So I understand the urgency of the problem. I know there has been some problems in the past but I think given the several different proposals that we have seen and heard of, these all merit our consideration and respect. I am con-

fidant with members of the committee, the FCC and all the stakeholders that we can find a solution that makes sense. We don't need to repeat the embarrassing mistakes of the past.

So this hearing is a positive step in the right direction. I look forward to your testimony and I yield back the balance of my time.

Mr. BOUCHER. Thank you very much, Mr. McNerney.

The gentlelady from Tennessee, Ms. Blackburn, is recognized for 2 minutes.

OPENING STATEMENT OF HON. MARSHA BLACKBURN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF TENNESSEE

Mrs. BLACKBURN. Thank you, Mr. Chairman, and I welcome our witnesses also. We are very pleased that you are here, and as you are hearing from everyone up here, we realize that things need to be done differently this time around and so we appreciate that you are helping us revisit what happened with the D block. We realize that there should be some lessons learned and we have had some successes in the past and we have had some not-so-successful outcomes. As we look at this and as we hear from you today, we want to keep in mind the consumer needs that are there, the public safety, consumer choice, the ever-changing technologies that are also being developed and innovated and then the need for competition within the broadband industry.

I am really concerned, and I will be interested to hear from you all on what you think the amount of spectrum we really need to fulfill the public safety needs. Is the 24 megahertz enough? Do we need to look at more of this? What was the problem with the additional 10 megahertz that we felt like could be the dual use there? So I think that those questions are best answered by you all and by engineers, as Ranking Member Barton said, you know, that you are the engineers looking at it, you know how to solve this problem, what the expansion of and the use of that spectrum can be. We all support a broadband, a good solid broadband policy, and want to see us make the most of this, and hearing from you today is important. I hope we learn our lessons well. Welcome to the committee, and I yield my time back.

Mr. BOUCHER. Thank you very much, Ms. Blackburn.

The gentleman from Vermont, Mr. Welch, is recognized for 2 minutes.

OPENING STATEMENT OF HON. PETER WELCH, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF VERMONT

Mr. WELCH. Thank you, Mr. Chairman. This issue for first responders is very important in Vermont just as much as it is in L.A. and every one of your communities. In Vermont, the police are doing a survey, and what they found was that 77 percent said that coverage was the biggest problem in our region. Twenty-seven percent of the respondents—these are law enforcement folks and first responder communities—stated that the current radio channels are at capacity and often congested and interoperability continues to be a huge problem.

What I am going to hope for in your testimony from a Vermont perspective but I think this will apply in general is consideration

of the following: one, cost allocation for a build-out of the national system utilizing the D block spectrum; two, specific challenges for border communities—Vermont has experienced real difficulties relating to a 1962 treaty which limits use of certain spectrum 100 kilometers from the border; and three, how topography affects the efficacy of the 700 megahertz system. Overall, there are three basically three things that have to be considered going forward. It is how do we build the system, how do we make it interoperable and how do we allow for competition so that the competition itself is going to be an incentive and a promoter of getting the job done. I yield back the balance of my time.

Mr. BOUCHER. Thank you very much, Mr. Welch.

The gentleman from Washington State, Mr. Inslee, is recognized for 2 minutes.

Mr. INSLEE. Thank you. Listening to these comments, I am sort of thinking a real discussion is, how do we free spectrum from cell block D. That sort of reminds me of the Escape from Alcatraz movie in that we are trying to free the spectrum. Most of our interest has been discussed. I just hope that the panel will discuss how we do this in a way that actually allows the financing of the construction of these networks in fact for public safety. It is important to finance it to actually get it done, and I look forward to the testimony. Thank you.

Mr. BOUCHER. Thank you very much, Mr. Inslee.

The gentleman from Connecticut, Mr. Murphy, is recognized for 2 minutes.

OPENING STATEMENT OF HON. TIM MURPHY, A REPRESENTATIVE IN CONGRESS FROM THE COMMONWEALTH OF PENNSYLVANIA

Mr. MURPHY. Thank you very much, Mr. Chairman, and thank you to the witnesses for being here today.

As Mr. Welch mentioned, although a lot of the attention in our public safety communications infrastructure has been focused on Louisiana, New York City, Connecticut, Vermont and across the Nation, we have daily communication gaps, and it has caused the rise of companies like one in my district, Mutual Link, which has developed web-based software that allows for very divergent technologies of communications systems to talk to each other, and I hope that one of the things that we talk about today in addition to a lot of the very important topics raised by my colleagues is the ability of companion software and companion technology to try to help solve some of the existing gaps that are in existence today, that even if we solve this problem of the spectrum going forward we are going to need to solve in the short term but also that we focus not only the issue of money and how we make sure that we have the capacity to build this system not only on the questions Mr. Barton raised relative to technology but timing as well. What is in any of these scenarios the realistic timing and what are our strategies in the interim to try to remedy those gaps as companies like the one I mentioned are trying to do.

I thank the witnesses for being here today. I thank the chairman for the hearing. I yield back.

Mr. BOUCHER. Thank you, Mr. Murphy.

The gentlelady from Florida, Ms. Castor, is recognized for 2 minutes.

Ms. CASTOR. Thank you, Chairman Boucher, very much for calling this important hearing on broadband across the country, particularly relating to our first responders. You know, coming from Florida here in late September, we are always mindful of the threat of hurricanes, and while we are fortunate we have had a fairly mild season, the 2004 season is still very fresh, and what I hear from first responders back home is that they have all the will in the world but we need your expert advice to show us the way to accomplish this and get it done.

So I will be intently interested in your testimony today and thank you very much for being here. I yield back my time.

Mr. BOUCHER. Thank you very much, Ms. Castor, and thanks to all the members who have made opening comments this morning.

We want to welcome now our panel of witnesses, and I will simply say a brief word of introduction about each and then call on each in turn for their testimony. Mr. William Bratton is the chief of the Los Angeles Police Department and is testifying this morning on behalf of the Major Cities Chiefs Association. Dr. Brian Fontes is CEO of the National Emergency Number Association. Chief Harlin McEwen is chairman of the Public Safety Spectrum Trust Corporation and chairman of the communications and technology committee of the International Association of Chiefs of Police. Mr. Jason Barbour is the 911 director for Johnston County, North Carolina. Mr. Stacey Black is assistant vice president for market development and mobility product management at AT&T. Mr. Joseph Hanley is vice president for technical planning and services for telephone and Data Systems Inc., the parent company of United States Cellular Corporation, and Dr. Kostas Liopiros is the founder of the Sun Fire Group.

We welcome each of our witnesses. Without objection, your prepared written statements will be made a part of our record and we would welcome your oral summary of approximately 5 minutes each.

Chief Bratton, we will be happy to begin with you.

STATEMENTS OF CHIEF WILLIAM BRATTON, CHIEF OF POLICE, LOS ANGELES POLICE DEPARTMENT; BRIAN FONTES, CEO, NATIONAL EMERGENCY NUMBER ASSOCIATION; CHIEF HARLIN R. MCEWEN, CHAIRMAN, PUBLIC SAFETY SPECTRUM TRUST; JASON BARBOUR, 911 DIRECTOR, JOHNSTON COUNTY, NORTH CAROLINA; STACEY BLACK, ASSISTANT VICE PRESIDENT, MARKET DEVELOPMENT, AT&T; JOSEPH HANLEY, VICE PRESIDENT, TECHNOLOGY, PLANNING AND SERVICES, TELEPHONE AND DATA SYSTEMS, INC.; AND KOSTAS LIOPIROS, PRINCIPAL AND FOUNDER, THE SUN FIRE GROUP LLC

STATEMENT OF WILLIAM BRATTON

Chief BRATTON. Good morning, Chairman Boucher and members of the committee. My name is William Bratton and I currently serve as chief of the Los Angeles Police Department. I would like

to thank you for this opportunity to appear before you today to discuss this critical issue.

I am here today speaking on behalf of the Major Cities Chiefs Association, which is comprised of the police chiefs of the 63 largest police departments in the United States and Canada. The 56 U.S. cities represented America's centers of industry, transportation, education and commerce. Their police departments provide public safety services to roughly 40 percent of America's population.

As you are well aware, the Federal Communications Commission auctioned portions of the 700 megahertz spectrum in May 2008, and although total auction proceeds significantly exceeded expectations, one block of spectrum, the D block, failed to attract a successful bidder. This was, in part, because of a requirement that the winning bidder had to construct a broadband wireless network built to public safety standards using the combined D block and adjacent public safety 700 megahertz spectrum.

Under current law, the FCC is required to auction the D block. We believe this course of action is not in the public interest, since it would likely generate little revenue for the federal government and allocate to commercial use scarce spectrum resources urgently needed by public safety. The Major Cities Chiefs urge the Committee and Congress to consider an alternative: enact legislation to reassign the D block from the auction pool and reallocate it to public safety. This action would result a strong foundation for a sustainable nationwide public safety wireless broadband network.

In my 40-year law enforcement career, I have been both a witness to and part of the evolution in policing technology. When I began as a police officer in Boston, the walkie-talkies that were available to us were so big and bulky that no one even wanted to carry them. While I was commissioner at the NYPD, we developed the COMPSTAT model that utilized timely information, gained through technology, and we were able to drastically reduce crime in that city. Today, many agencies have established real-time crime centers that are leveraging new technology to do an even more effective job of fighting crime. Very soon, we will be moving to a predictive policing model where, by studying real-time crime patterns, we can anticipate where a crime is likely to occur. Without question, this evolution has been driven by the improvements and need for information technology.

Of course, in order to be useful, information needs to be relevant, accurate and timely, but just as important, it must be accessible. New technologies such as automated license plate readers, biometrics, medical telemetry, automated vehicle location and streaming video only scratch the surface of the capabilities that will be carried by broadband networks. The D block is critical for the accessibility of information to first responders across our Nation. Although some have questioned how to offset the potential loss of revenue resulting from the D block being taken off the auction block, we see this scenario in fundamentally different terms. We view the reallocation of the D block as a critically needed investment in public safety rather than as a loss of revenue. This investment of spectrum into public safety will reap large dividends far into the future with reduced crime and victims.

Let me offer an example. In Los Angeles, a recent Rand Corporation study showed that the negative economic impact of a single homicide in my city is \$4 million. Now, mind you, this \$4 million figure is actually a conservative number. Utilizing technology, we have been able to reduce the number of homicides in Los Angeles by over 300 over the last several years. This has resulted in a net positive economic impact of \$1.2 billion to my city. Coincidentally, my budget is \$1.2 billion. Thus, because of our crime reduction efforts, we have actually become revenue neutral.

Investing the D block spectrum for use by public safety will benefit both urban areas as well as rural areas. In urban areas, the full amount of spectrum will be necessary to support the myriad of current and emerging broadband applications that are transforming public safety operations nationwide. In rural areas, the added spectrum can be used as collateral to form public-private partnerships, thereby reducing or eliminating a financial burden that such jurisdictions would otherwise have to assume to either build their own network or become a subscriber on a less reliable commercial broadband network.

After the failure of the D block auction last year, there was significant confusion in the public safety community about how best to proceed with this critical issue. I am pleased to report today that in the last 5 months the eight major public safety organizations have come together in an unprecedented effort to forge a consensus on how to make a wireless public safety broadband network a reality.

At this time, I would like to briefly address the issue of the pending waiver requests. Under current FCC rules, the existing 10 megahertz of spectrum assigned to public safety licensee PSBL cannot be utilized and remains fallow. Currently, 13 jurisdictions including many represented by you have filed waiver requests with the FCC seeking to build local or regional broadband wireless networks utilizing this spectrum prior to the construction of a nationwide network. It is apparent that the communities large and small, urban and rural have come to the realization that a public safety broadband wireless network is a critical and urgent need. They have also come to the conclusion that they can construct local networks either alone or through a public-private partnership arrangement. We urge the FCC to expeditiously review the pending waiver requests and grant all requests that meet their requirements. Granting waivers to jurisdictions with qualified proposals will permit early build-out of local and regional broadband networks.

In closing, we urge that you take the legislative action necessary to invest this spectrum in public safety nationwide. The benefits gained from such an investment in first responder communications will dramatically transform how we serve the public we have all sworn to protect. Thank you for this opportunity to address these important issues.

[The prepared statement of Chief Bratton follows:]

HOUSE COMMITTEE ON ENERGY AND COMMERCE
SUBCOMMITTEE ON COMMUNICATIONS, TECHNOLOGY,
AND THE INTERNET

TESTIMONY OF
CHIEF WILLIAM J. BRATTON
LOS ANGELES POLICE DEPARTMENT

REPRESENTING
MAJOR CITIES CHIEFS ASSOCIATION

SEPTEMBER 24, 2009

Good Morning Chairman Boucher and members of the Committee.

My name is William J. Bratton and I currently serve as Chief of the Los Angeles Police Department. I would like to thank you for this opportunity to appear before you today to discuss a critical issue—wireless broadband communications for public safety.

I am here today speaking on behalf of the Major Cities Chiefs Association (MCC), which is comprised of the Police Chiefs of the sixty-three largest police departments in the United States and Canada. The fifty-six U.S. cities represented in MCC are America's centers of industry, transportation, education, and commerce. Their police departments provide public safety services to roughly forty percent of America's population. MCC members are active in advisory roles to the Department of Justice, the Department of Homeland Security, and the Department of Defense. The Association is non-partisan, serving member departments and their populations. The Major Cities Chiefs Association strives to provide effective solutions to modern day urban problems as well as prevent, protect against, and respond to crime and hostile acts launched against the U.S. or Canada.

700 MHz D Block

As you know, the Federal Communications Commission auctioned portions of the 700MHz spectrum in May 2008. Although total auction proceeds significantly exceeded expectations, one block of spectrum, the 700 MHz D Block, failed to attract a successful bidder. This was, in part, because of a requirement that the winner construct a broadband

wireless network built to public safety standards using the combined D Block and adjacent Public Safety 700 MHz spectrum.

Commercial wireless network operators are reluctant to build wireless networks designed to meet public safety survivability standards. When faced with this prospect during the D Block auction, potential bidders balked. The cost to meet Public Safety coverage and reliability standards was simply beyond their ability to gauge. The risk was too great. The Commission's failure to anticipate the reluctance of bidders to assume this risk doomed the auction from its inception. We believe that a second auction would likely suffer the same fate.

Under current law, the F.C.C. is required to auction the D Block. We believe this course of action is not in the public interest, since it would likely generate little revenue for the Federal Government and allocate to commercial use scarce spectrum resources urgently needed by Public Safety. The Major Cities Chiefs urge the Committee and Congress to consider an alternative—enact legislation to reassign the D Block from the auction pool and reallocate it to Public Safety. This action would result in two 10 MHz blocks of spectrum that will provide the foundation for a sustainable nationwide Public Safety wireless broadband network.

Investment in Public Safety Communications Technology

In my 40+ year law enforcement career, I have been both a witness to and part of the evolution in policing technology. When I began as a police officer in Boston, the walkie-

talkies that were available to us were so big and bulky that no one even wanted to carry them. While I was Commissioner at the NYPD, we developed the COMPSTAT model that utilized timely information, gained through technology, and we were able to drastically reduce crime rates. Today, many agencies have established Real Time Crime Centers that are leveraging new technology to do an even more effective job of fighting crime. Very soon, we will be moving to a Predictive Policing model where, by studying real time crime patterns, we can anticipate where a crime is likely to occur. Without question, this evolution has been driven by the improvements in information technology.

Of course, in order to be useful, information needs to be relevant, accurate, and timely. But just as important, it must be accessible. New technologies such as automated license plate readers, biometrics, medical telemetry, automated vehicle location, and streaming video only scratch the surface of the capabilities that will be carried by broadband networks. The D Block is critical for the accessibility of information to First Responders across our nation.

Although some have questioned how to offset the potential loss of revenue resulting from the D Block being taken off the auction block, we see this scenario in fundamentally different terms. We view the reallocation of the D Block as a critically needed investment in Public Safety rather than as a loss of revenue. This investment of spectrum into Public Safety will reap large dividends far into the future.

Let me offer an example. In Los Angeles, a recent Rand Corporation study showed that the negative economic impact of a single homicide in our city is four million dollars. Now, mind you, this four million dollar figure is actually a conservative number. Utilizing technology, we have been able to reduce the number of homicides in Los Angeles by over 300. This has resulted in a net positive economic impact of \$1.2 billion. My budget at LAPD is currently \$1.2 Billion. Thus, because of our crime reductions, we have actually become revenue neutral.

Public Safety Needs the D Block

Investing the D Block spectrum for use by Public Safety will benefit both urban areas as well as rural areas. In urban areas, the full amount of spectrum will be necessary to support the myriad of current and emerging broadband applications that are transforming public safety operations nationwide. In rural areas, the added spectrum can be used as collateral to form public-private partnerships, thereby reducing or eliminating a financial burden that such jurisdictions would otherwise have to assume to either build their own network or become a subscriber on a less reliable commercial broadband network. In either case, granting this spectrum to Public Safety puts First Responders in a position to determine how best to manage this scarce resource.

Consensus Among Public Safety Organizations

After the failure of the D Block auction last year, there was significant confusion in the Public Safety community about how best to proceed with this critical issue. I am pleased to report today that in the last five months the major Public Safety organizations have

come together in an unprecedented effort to forge a consensus on how to make a wireless public safety broadband network a reality.

- On April 20th and May 28th, meetings hosted by Major Cities Chiefs and APCO in Washington DC resulted in a consensus among Public Safety organizations to urge Congress to remove the requirement to auction the D Block and assign it to the Public Safety Broadband Licensee (PSBL).
- During June and July, Long Term Evolution (LTE) was endorsed as the technology platform of choice for the nationwide 700 MHz Public safety broadband network by major public safety organizations including APCO, PSST, NPSTC and NENA.
- On September 4th, the National Public Safety Telecommunications Council (NPSTC) 700 MHz Broad Band Task Force (BBTF) issued their Report and Recommendations. Among these recommendations is that the D Block should be assigned to Public Safety. Also included in this report were draft standards that, if adopted by the FCC, would ensure national interoperability between any of the jurisdictions licensed to operate in the Public Safety network.

The Public Safety organizations that support reallocation of the D Block to Public Safety include:

- International Association of Chiefs of Police (IACP)
- International Association of Fire Chiefs (IAFC)
- Major Cities Chiefs Association (MCCA)
- Metropolitan Fire Chiefs (MFC)
- Major County Sheriffs Association (MCS)

- National Sheriffs Association (NSA)
- Association of Public Safety Communications Officials International (APCO)
- National Emergency Management Association (NEMA)
- Public Safety Spectrum Trust (PSST)
- National Public Safety Telecommunication Council (NPSTC)

Waiver Requests

At this time, I would like to address the issue of the pending waiver requests. Under current FCC rules, the existing 10 MHz of spectrum assigned to the PSBL cannot be utilized and remains fallow. The following jurisdictions have filed waiver requests with the FCC seeking to build local or regional broadband wireless networks utilizing this spectrum prior to the construction of a nationwide network:

- Boston, Massachusetts San Francisco Bay Area (San Jose, Oakland, SF)
- State of New York City of New York District of Columbia
- Chesapeake, Virginia San Antonio, Texas State of New Mexico
- State of North Dakota State of Hawaii State of New Jersey
- Iowa Public Safety Broadband Coalition City of Charlotte North Carolina

Reading the above list of waiver requests, it is apparent that communities large and small, urban and rural have come to the realization that a public safety broadband wireless network is a critical and urgent need. They have also come to the conclusion that they

can construct local networks either alone or through a public-private partnership arrangement.

It is important to recognize that public safety control of the spectrum does not preclude public-private partnerships in jurisdictions that would benefit from such a relationship with a commercial provider. Such an arrangement will be particularly advantageous in jurisdictions where there is less Public Safety demand for spectrum. In these areas, the network capacity can be leveraged to induce commercial entities to partner with government to construct successful broadband wireless networks that serve the needs of both Public Safety and the larger community. By leveraging existing Public Safety and commercial infrastructure, Public Safety in both rural and urban areas will reduce or eliminate the costs associated with their build outs. The waiver requests filed by such entities as the State of New Mexico, the Iowa Public Safety Broadband Coalition and the State of Hawaii, among others, challenge the assumption that rural jurisdictions are incapable of forming partnerships with commercial providers to build broadband wireless networks.

These jurisdictions are the resident experts; they know local conditions better than anyone else. Through their waiver requests, they are asserting that they can and will form public private partnerships to build local wireless broadband networks that will immediately support Public Safety as well as be interoperable with other nationwide Public Safety broadband networks when deployed.

Qualified Waivers Should Be Granted

We urge the F.C.C. to expeditiously review the pending waiver requests and grant all requests that meet their requirements. Granting waivers to jurisdictions with qualified proposals will permit early build out of local and regional broadband networks. In addition to gaining access to broadband applications on a daily basis, these jurisdictions will also benefit from increased interoperability during an event requiring a multi-agency or multi-jurisdictional response. Public Safety responders from one regional broadband network will be able to respond to a different jurisdiction and utilize their own communication devices to immediately assist the local First Responders.

As a further benefit, early network deployments will provide an environment for Public Safety users to test broadband technology under real world conditions. Additionally, Public Safety-specific applications can be developed, tested and perfected in advance of the nationwide network deployment. This will aid greatly in the refining of the standards necessary for the build out and operation of the Public Safety wireless broadband system.

Conclusion

In closing, we urge that you take the legislative action necessary to invest this spectrum in Public Safety nationwide. The benefits gained from such an investment in First Responder communications will dramatically transform how we serve the public we have all sworn to protect. Thank you for this opportunity to address these important issues, I will be pleased to answer any questions that you may have.

Mr. BOUCHER. Thank you very much, Chief Bratton.

We now have two recorded votes pending on the floor of the House. I think we have time to hear from Dr. Fontes and then the committee will take a brief recess while members respond to the call of the House. Dr. Fontes, we will be pleased to hear from you.

STATEMENT OF BRIAN FONTES

Mr. FONTES. Thank you. I appreciate it very much, Mr. Chairman.

I would like to thank you, Mr. Stearns and other members of this subcommittee. My name is Brian Fontes and I represent the National Emergency Number Association. NENA is a representation organization of over 7,000 dedicated 911 and emergency communication professionals who receive and manage nearly 250 million 911 calls annually. In reality, these public safety individuals are the first link in the emergency response chain that so many Americans rely on. Before I continue, there are two members of this committee who are not here and I understand their demands for their role in the E-911 caucus as co-chairs on the House side, and that is Representatives Eshoo and Shimkus. I also want to extend my appreciation to other members of this committee for their commitment to the caucus and also for their commitment to the advancement of 911.

Wireless broadband is obviously very important, and in a day and age when many sectors of the economy rely on broadband services, public safety should have that same opportunity to do so. It is obvious that dealing with voice, video and data is in fact critical. What is quite interesting as I reviewed many of the filings and certainly in the testimonies presented here, there is so much agreement that exists among the public safety organizations and frankly by some of the comments you have made today in your opening statements. We all agree that broadband both wired and wireless provides significant public safety benefits. A network for public safety must be available nationwide, rural as well as urban centers. We all agree that there must be funding to build this network, to operate it, to maintain it, to buy the equipment and the applications necessary. Public safety needs to be able to take advantage of the significant research and development that has been poured into the commercial sector and to be able to utilize that investment. We all agree that the network must meet the significant and reasonable needs of public safety.

Agreement on these issues and the lack of, let me repeat that, and the lack of federal funding for a nationwide public safety broadband network is in large part why the FCC initiated the D block public-private partnership that started this whole debate. However, recognizing that this proposal was not necessarily designed correctly, the auction was not successful. We do believe and I believe that with some modifications and some corrections and particularly to the point that you had made, Mr. Chairman, about the uncertainty associated with the auction once you won the bid that the auction could in fact move forward. But NENA also recognizes that there may in fact be another failure if the commission were to move in that direction. And so we propose yet another alternative, and that proposal we believe presents significant benefits

to public safety while also like other proposals would require Congressional action. We believe that the 10 megahertz that is available in the public safety band be married to the D block and auctioned as a 20 megahertz block. Most parties in the technical world realize that a 20 megahertz block provides the efficiencies needed for broadband for public safety as well as commercial use. We believe that this marriage provides substantial benefits to public safety. We would propose that half the auction revenues generated from a 20 megahertz auction be put into a broadband trust as an initial start for access to that network. We believe that the licensee should have imposed upon it aggressive but achievable nationwide build-out requirements, that public safety has access to all 20 megahertz and when needed priority access. We believe that is a benefit. Public safety access to the network at a known discounted rate should also be established before the auction, and with the established reoccurring revenue source to continue to provide funds, in essence the funding issue that we all raised today. This proposal provides yet another option to be considered.

To be sure, different options have been proposed by other public safety organizations and some wireless carriers. While we share many of the same goals, what really is the crux of the issue here is what will assure a nationwide broadband network with a funding mechanism that will encourage and provide for build-out nationwide, and that is it.

With that said, NENA asks the following two overarching factors, that they be nationwide and that there will be funding made available. I strongly encourage you, actually all of us, to look at unconventional and perhaps, yes, initially unpopular ideas that may result in a known and reoccurring source of funding, again a primary concern here, for public safety's broadband network. For example, at last week's FCC oversight hearing, Chairman Genachowski referred to the E-rate as one of the great successes of the 1996 Telecom Act, ensuring access to the Internet for our Nation's schools and libraries. If access to broadband for public safety is as important as we all know it is, then surely we can come up with an innovating funding proposal as we did for the schools and libraries over a decade. This is a monumental effort. There is no doubt about it. NENA stands ready to work with all of you and certainly all of public safety to make this nationwide broadband network, the funding available for it, to become a reality. Thank you.

[The prepared statement of Mr. Fontes follows:]

**STATEMENT OF
BRIAN FONTES, CEO**

On Behalf of the

National Emergency Number Association

Before the

**United States House of Representatives
Subcommittee on Communications, Technology, and the Internet of the
Committee on Energy and Commerce**

**A National Interoperable Broadband Network For Public Safety:
Recent Developments**

September 24, 2009

Mr. Chairman. Members of the Subcommittee. My Name is Brian Fontes and I am CEO of the National Emergency Number Association (NENA). NENA represents over 7000 dedicated 9-1-1 and emergency communications professionals who receive and manage nearly 250 million 9-1-1 calls annually. These public safety individuals are the first link in the emergency response chain that so many Americans rely on every day. Today I appear before the Committee representing not just a national organization, but also on behalf of the thousands of individual NENA members who work tirelessly to help those who dial 9-1-1 in times of need. I am continually impressed with our nation's 9-1-1 and emergency response leaders who always find a way to get the job done in the face of staffing, funding and technology challenges. I would like to also specifically thank the House Co-chairs of the Congressional E9-1-1 Caucus, both members of this Subcommittee, Representatives Eshoo and Shimkus, and other leaders of this Subcommittee for your commitment to advance 9-1-1 and emergency communications systems.

The Need for Broadband

On behalf of its Board and members, NENA thanks the Committee for holding today's hearing. Wireless broadband is a critical link in the overall need for broadband by 9-1-1/emergency communications centers and individual emergency responders. Unfortunately, in too many parts of the country 9-1-1 and emergency communications systems today remain largely stuck in the technology and mentality of the 20th Century at a time when 21st Century broadband-enabled technologies are being deployed throughout most other sectors of the economy. The results are responders without numerous forms of available and useful information, emergency communications systems that are often inflexible and insufficiently redundant during major disasters, and overall system inefficiencies.

Hundreds of millions of 9-1-1 calls are made every year by citizens who are increasingly capable of utilizing innovative forms of voice, video and data services. Yet, today many 9-1-1/emergency communication centers are primarily limited to voice-only communications. In the future, 9-1-1/emergency communications centers in a broadband world will be pushing and pulling data not only from the 9-1-1 caller, but also from other external data sources and sharing that information with other agencies and responders in the field. The ability to move data from the 9-1-1/emergency communication center to those responders on the scene is in large part why we are discussing public safety broadband in the 700 MHz band. This will better enable those who respond to emergencies to offer a more efficient and informed response, resulting in improved outcomes for those who rely on the 9-1-1 system for help.

Through the debate over the D Block and the larger discussion on a National Broadband Plan, Congress and the FCC have an opportunity to foster the migration from analog, voice-centric 9-1-1 and emergency communications systems into a 21st century, next generation, IP broadband-based emergency services model that embraces a wide range of voice, video, and data applications. Until all emergency response agencies and individual responders can access interoperable wired and wireless broadband networks, and utilize the services and applications enabled by such networks, the migration to the next generation of truly integrated and interoperable emergency communications will remain a mere vision.

The Challenge: Ensuring Nation-wide Availability and Recurring Funding

Ensuring access to wireless broadband networks, and the services and applications made possible by broadband, is critically important. However, as we tout the benefits of broadband for 9-1-1 and emergency communications, we must also ensure that sufficient funding is available access and utilize such broadband networks and applications. To that end, on August 12, 2009, I wrote a letter to Federal Communications Commission Chairman Julius Genachowski addressing this complicated issue - establishing a nation-wide, interoperable, public safety wireless broadband network and ensuring that sufficient funding is made available. In the letter I noted that fundamentally, NENA's objectives in this discussion are to ensure that:

- a public safety wireless broadband network, or network of networks, is built nation-wide;
- public safety agencies have priority access to that network or networks at affordable rates and on favorable terms;
- a known and recurring revenue source is available to pay for public safety access to and use of (hardware, software, applications, training) that network(s);
- public safety is able to benefit from the substantial research and development of the commercial wireless industry; and
- sufficient oversight and enforcement of agreed upon requirements for the nation-wide system is provided.

Congress, the FCC, and other Federal agencies, have focused significant attention on providing access to wireless broadband networks for public safety. Congress dedicated 24 MHz of spectrum in the 700 MHz band for public safety. The FCC further determined that 10 MHz (of the 24 MHz public safety allocation) adjacent to the 700 MHz D Block commercial allocation would be designated for public safety broadband use.

In the absence of Federal funding for a public safety broadband network, the FCC embarked on a plan to create a public safety and commercial wireless shared network. This would be done by establishing a Public Safety Broadband Licensee (PSBL), awarding 10 MHz public safety license to the Public Safety Spectrum Trust (PSST), and conditioning the auction of the adjacent 10 MHz Commercial D Block in partnership with the PSBL. Under the FCC proposal, the D Block winner would have to negotiate public safety requirements with the PSBL after the license was purchased at auction. The benefit to the D Block auction winner is access to the 10 MHz public safety block adjacent to the D Block. The benefit for public safety was that the commercial partner, in return for conditional access to 10 MHz of public safety spectrum, would finance and build a nation-wide, interoperable network, something public safety agencies throughout most of the country could not afford to do on their own. The venture also would allow public safety priority access to the commercial 10 MHz D Block during emergencies. An added benefit for public safety would be access to the significant research and development of a commercial partner that would not likely exist if the network was built solely by and for public safety. The D Block auction was held and the FCC failed to receive a minimum bid for the D Block. Thus, the D Block remains available for auction. Since that time the FCC has developed a full docket of suggested improvements to the process used for the D Block auction.

The Options

I believe it was then, and still is, a viable option to create a public safety/commercial partnership for a broadband network available to public safety. The Commission's original D Block concept appears to be the only concept that would not require congressional action. Since the failed auction, new proposals have been submitted to the Commission regarding either the D Block or access to the 10 MHz public safety broadband spectrum in the 700 MHz band by parties seeking waivers of the Commission's rules. Verizon Wireless and AT&T and several public safety organizations seek to have the D Block reallocated to public safety. This option requires congressional action. T-Mobile and some of the smaller wireless carriers oppose the reallocation of the D Block to public safety and recommends that the D Block be auctioned with the revenue of the auction going to public safety for their efforts to build broadband networks in their current 10 MHz block. This proposal also would require congressional action.

Recognizing the need for nation-wide availability and the need for funding, in NENA's August 12th letter to FCC Chairman Genachowski, we presented one alternative option that has generated significant debate. NENA's alternative proposal would combine the 10 MHz allocated for public safety broadband use with the adjacent D Block 10 MHz, thus creating a 20 MHz block to be auctioned to a commercial entity or entities. In exchange for reallocating the public safety spectrum, we would propose the following: half of the auction revenue be placed into a public safety broadband trust as a down payment on public safety access to and use of the network; public safety would be granted access to the full 20 MHz commercial block and on a priority basis when needed; public safety would have to be assured of discounted rates to access the network; and public safety would need to have guaranteed access to a renewable source of funding to access and utilize the network. Public safety also would benefit from build out requirements as part of the license requirements, in addition to benefiting from the commercial research and development in technology. In essence, this would be an exchange of 10 MHz of

public safety spectrum for something of equal or greater value – a nationwide broadband network built and paid for by commercial, private or public interests with guaranteed access and priority access for public safety and with a requirement that a long-term funding source is identified. This option would also require congressional action. NENA does not believe that this is the only option for consideration, but simply one that could meet the objectives of a nation-wide network with funding as articulated in my testimony.

While different in approach, a common thread runs through all of the suggestions: Essentially all, or most, parties who have recently filed with the FCC agree that there is significant value for public safety in a combined 20 MHz block, rather than a stand-alone 10 MHz block. All, or most, parties favor a nation-wide public safety broadband network and funding for it. For example, in an ex parte filed by Ericsson with the FCC on September 15, 2009, Ericsson states that any spectrum decision should focus on: adopting a 20 MHz bandwidth allocation, defining a Federal funding mechanism, integrating networks in terms of technology, cyber security, operational standards, roaming and interoperability. Ericsson also supports the FCC's commitment to making public-private partnership work and has noted that this arrangement provides the best opportunity for establishing an interoperable broadband public safety network. AT&T, in a July 30, 2009 ex parte filing also expressed the benefit of having a 20 MHz allocation and in a September 9, 2009 ex parte filing AT&T also suggests that government grant programs should be available for funding of a public safety broadband network, especially in rural areas. Historically, however, Federal funding has not been available to build out a nationwide public safety network which is why the FCC attempted to address the funding issue by developing a public safety/commercial entity partnership. Furthermore, reliance on government funding could vary from year-to-year, thus making it difficult to plan for network deployment, technology acquisition, applications and training.

In summary, the options to date are:

- Allow the FCC to re-auction the D Block addressing the causes for the failed initial auction to create a public safety/commercial partnership -- no congressional action required.
- Reallocate the D Block to public safety allowing public safety to have 20 MHz of contiguous spectrum in the 700 MHz band – congressional action required.
- Conduct a D Block auction and have auction revenues go to public safety for partial payment for a broadband network in the public safety 10 MHz block – congressional action necessary to redirect funding.
- Reallocate (exchange) the 10 MHz of public safety broadband spectrum for public safety's access to the 20 MHz commercial block, ensuring priority access, renewable annual funding, discounted rates for access to the network, and build out requirements – congressional action required.

In the meantime, waivers are pending before the FCC seeking access to the 10 MHz public safety 700 MHz broadband spectrum prior to the FCC's deliberation of a national public safety broadband plan.

It is important that all of these approaches be carefully reviewed without delay, especially when the issue concerns the future of 9-1-1 and emergency communications as we move into the broadband, IP-enabled, 21st century world of communications.

NENA asks that the following two overarching factors be considered in your deliberations:

First, each proposal should be weighed in terms of the proposal's ability to provide a nation-wide wireless broadband network that public safety can utilize. For the record, NENA takes no position on whether the spectrum licenses should be national, regional or state in geographic scope. For example, if Congress approves a reallocation of the D Block to public safety, what assurances will there be that a network (or network of networks) be built to serve public safety in urban, suburban and rural areas? What sources of funding will be available for this broadband network especially outside of major markets? Are the funding sources sustainable and predictable in all areas, not just major markets?

Second, Congress along with input from the FCC and other Federal agencies should address the funding needs of public safety, especially as public safety moves to broadband (wireless and wired). Funding is needed to ensure access to all forms of broadband for all 91-1 and emergency response organizations, including access to public safety wireless broadband networks. To date, the Federal government has not presented dedicated funding for the buildout and maintenance of public safety broadband networks or for the services, technology and applications enabled by broadband. I urge you to take the issue of funding very seriously and to address the issue with an open mind. I ask that you understand the limitations and inability to plan for the future when relying on the unpredictable nature of annual appropriations and, therefore, the need to look at more predictable and reliable sources of funding. Finally, I strongly encourage you to look at unconventional and perhaps initially unpopular, ideas that may result in a known and recurring source of funding for public safety's broadband needs. For example, at last week's FCC oversight hearing, Chairman Genachowski referred to the E-Rate as one of the great successes of the 1996 Telecom Act, ensuring access to the Internet for our nation's schools and libraries. If access to broadband for public safety is as important as we all know and say that it is, surely we can come up with an innovate funding proposal as we did for schools and libraries over a decade ago.

In conclusion, effective resolution of this debate offers a significant opportunity to transition our nations 9-1-1 and emergency communications systems from limited, analog, voice-centric technologies into a 21st century, next generation, IP broadband-based emergency services model that embraces a wide range of voice, video, and data applications. This is a monumental opportunity for the future of emergency communications. We remain committed to working with Congress, the FCC, and all stakeholders to make this work.

Thank you.

Mr. BOUCHER. Thank you very much, Dr. Fontes.

I am also to ask unanimous consent to put three statements in today's record: a letter from the Association of Public Safety Communications Officials International, a letter from T Mobile USA, and a statement from the chief of the Newport, Vermont, Police. Without objection, so ordered.

[The information appears at the conclusion of the hearing.]

Mr. BOUCHER. We are going to stand in recess until the conclusion of these two votes. It should not be very long, a half-hour at most, I think, probably less. So please be patient and we will return shortly.

[Recess.]

Ms. ESHOO [presiding]. I don't want to break up the festivities, but I think that we can get back to our witnesses. I think that Chief McEwen is next.

Chief McEwen, you are on. I understand the challenge. It is hard for us to get into our seats too.

STATEMENT OF HARLIN McEWEN

Chief McEWEN. Thank you, Acting Chairman, and thank you, Chairman Boucher and Ranking Member Stearns and distinguished members of the committee for the opportunity to appear before you today. We applaud the efforts of the subcommittee members and other Members of Congress for your continuing interest and support in our efforts to create a nationwide public safety wireless broadband network.

My name is Harlin McEwen and I am the retired police chief for the city of Ithaca, New York, and I am also retired as a deputy assistant director of the FBI in Washington. I serve as the chairman of the communications and technology committee of the International Association of Chiefs of Police, a position I have held for more than 30 years. I also serve as the elected chairman of the Public Safety Spectrum Trust, a nonprofit corporation that consists of representatives of 15 national public safety organizations. The principal purpose of the PSST is to serve as the licensee and manager for the 700 megahertz nationwide public safety broadband license commonly referred to as the PSBL. The PSBL was granted to the PSST on November 19, 2007, and includes the 10 megahertz of broadband spectrum that is intended to be one-half of the spectrum that will be used to develop a shared commercial public safety network. The other half of the spectrum will come from the so-called D block.

This is not the first time I have appeared before you on this topic but I want to once again stress why it is so important for the United States to have a nationwide public safety broadband network. Any review of major crises such as 9/11 or Katrina shows how much the personal efforts and effectiveness of our Nation's first responders, police, firefighters, emergency medical personnel and others, are diminished or undermined when the communications infrastructure that supports our efforts fails or is insufficient for the needs of public safety professionals. Our vision is to embrace the capabilities of broadband technology but at the same time not forget that public safety needs a network that is hardened to withstand catastrophes and has extended backup power, satellite

backup and other important features so that it will be available and reliable in a crisis. Establishing and building out the wireless broadband network will be a significant challenge but it is one that very much needs to be done to meet our national security and public safety needs for the years to come.

As you are aware, the 700 megahertz spectrum auction conducted by the FCC in early 2008 did not attract a winning bid for the D block. Since then the FCC has sought several rounds of comment on various new proposals and options but has taken no further action. During the past 16 or so months, the PSST and the public safety community have worked diligently to examine options that will enable us to be successful and also preserve requirements that will result in a network designed to deliver up-to-date, affordable and interoperable broadband communications capabilities to our country's first responders. The PSST has been working with the FCC as it also examines various options.

In the total absence of conventional funding alternatives, the PSST supports the public-private partnership concept where the private partners which will be using some of the shared spectrum for their own commercial purposes and profit will be the principal source of financial support to the PSST. For example, the second report and order envisions that the use of public safety spectrum by the private partners will be under a lease agreement with the PSST. Since I last appeared before you, we have worked hard to achieve consensus within the public safety community to move this process forward. All of the major national public safety organizations with the exception of the National Emergency Number Association have reached consensus on the preferred approach for success. The consensus position is for Congress to adopt legislation that will direct the FCC to remove auction requirements from the D block and to instead allocate it to the national public safety broadband license. This would then give public safety 20 megahertz of broadband spectrum that would enable us to proceed with public-private partnerships through a request for proposal process that would identify the best private partners to build out the network. This will also give us the ability to develop strong public-private partnerships locally and nationally that will provide the private funding necessary through network leasing and sharing agreements without requiring dependence on federal, State and local funding or auction revenue.

We look forward to working with you in this committee to make the public safety broadband network a reality in the near future. We urge you to support the proposed legislation and consensus position that I have described. Our efforts to get a nationwide public safety wireless broadband network have been going on for a very long time and we now call upon you to help us achieve this most important public safety goal. Thank you.

[The prepared statement of Chief McEwen follows:]

WRITTEN TESTIMONY OF

Chief Harlin R. McEwen

Chairman
Public Safety Spectrum Trust Corporation
and
Chairman
Communications & Technology Committee
International Association of Chiefs of Police

Before the

SUBCOMMITTEE ON COMMUNICATIONS, TECHNOLOGY AND THE INTERNET
COMMITTEE ON ENERGY AND COMMERCE
UNITED STATES HOUSE OF REPRESENTATIVES

September 24, 2009

**EXAMINING POTENTIAL OPTIONS FOR THE CREATION
OF A NATIONAL INTEROPERABLE BROADBAND NETWORK
FOR USE BY THE PUBLIC SAFETY COMMUNITY**

Thank you, Chairman Boucher, Ranking Member Stearns and distinguished Members of the Committee for the opportunity to appear before you today.

My name is Harlin McEwen. I have dedicated nearly 50 years of my life to public safety, most of that in law enforcement. I am the retired Police Chief for the City of Ithaca, New York, and am also retired as a Deputy Assistant Director of the Federal Bureau of Investigation in Washington, DC. I serve as Chairman of the Communications and Technology Committee of the International Association of Chiefs of Police (IACP), a position I have held for more than 30 years.

I also serve as the elected Chairman of the Public Safety Spectrum Trust Corporation (PSST), a non-profit corporation formed under the laws of the District of Columbia. The PSST consists of fifteen national public safety organizations that collectively represent more than a half million public safety first responders and professionals. The principal purpose of the PSST is to serve as licensee for the 700 MHz nationwide Public Safety Broadband License (PSBL), which was granted to the PSST by the Federal Communications Commission (FCC) on November 19, 2007. The PSBL is for the 10 MHz of broadband radio spectrum and 2 MHz of guardband spectrum in the 700 MHz band that has been allocated by the FCC for public safety. It is intended to be part of the spectrum that is proposed for development of a shared commercial/public safety wireless broadband network. The other part of the spectrum is proposed to come from the so-called D Block. The PSST is committed to serving the needs of the local, state and federal public safety community. I and the other members of the Board of Directors of the PSST take this duty very seriously, and I appear today on behalf of not only the PSST, but also the public safety community we serve.

First, I am sure each of you knows why having a national public safety broadband network is so important, and we applaud the efforts of Congress and the FCC to support the creation of this network. Any review of major crises such as 9-11 or Katrina shows how much the personal efforts and effectiveness of our nation's first responders – police, firefighters, emergency medical personnel, and others – are diminished or undermined when the communications infrastructure that supports our efforts fails or is insufficient for the needs of the public safety professionals. Our vision is to embrace the capabilities of broadband technology, but at the same time not forget that public safety needs a network that is hardened to withstand catastrophes and has power support for individual communications sites, satellite back-up and other important features so that it will be available and reliable in a crisis.

We also need a network that uses one common technology standard so the dozens of separate groups making up our nation's first responders in any area can communicate with each other. This requires that the public safety community, whether local, regional or national, be on the same frequency, using the same network. In answer to the need for one common technology standard, all of the major national public safety organizations have recently endorsed Long Term Evolution (LTE) technology as their choice for this network. This decision was based primarily on the lack of commitment from the WiMax promoters to develop standards and products for the 700 MHz band.

Establishing and building out the wireless broadband network will be a significant challenge, but it is one that very much needs to be done to meet our national security and public safety needs for the years to come. In response to direction from Congress, the FCC is currently working to develop a National Broadband Plan that must be completed by February 2010. We are supporting the FCC in this endeavor and believe it is critical

that a nationwide public safety wireless broadband network be included in the plan. It is important to recognize that a nationwide wireless broadband network will address the critical mobility needs of our public safety first responders. In implementing a new nationwide public safety network, we are convinced that by expanding broadband communications capabilities to public safety personnel, we will also be expanding broadband services to the public in unserved and underserved areas of our nation.

As you are aware, the 700 MHz spectrum auction conducted by the FCC in early 2008 did not attract a winning bid for the D Block. Since then, the FCC has sought several rounds of comment on various new proposals and options, but has taken no further action. During the past 16 or so months the PSST and the public safety community have worked diligently to examine options that will enable us to be successful and also preserve requirements that will result in a network designed to deliver up-to-date, affordable and interoperable broadband communications capabilities to our country's first responders. The PSST has also been working with the FCC as it examines various solutions.

We in the public safety community have come a long way in the past few years – with the help of the FCC and many of you here in Congress – to be in a position to play a constructive role in crafting a viable solution to improve our longstanding mobile communications deficits. We have embraced the concept of sharing the use of spectrum, and sharing a network, with commercial providers, with the understanding as set forth in the FCC's previous order that public safety will have priority access to the network when it urgently needs it.

The FCC's Second Report and Order assigns important tasks to the PSST as the public safety broadband licensee to ensure that the needs of first responders are met. Public safety's needs, and the technology

available to meet those needs, will not remain static. There will be a continuing need for input from the public safety community with regard to network upgrades being implemented by the commercial operator (as every commercial operator knows, a network must be continually maintained and upgraded). We see the PSST in a continuing role as the public safety representative in these matters.

There is also a very important role to be played with respect to the public safety community itself, to educate public safety users and assist them in embracing new broadband technologies and data services that will become available to them with the implementation of a nationwide wireless broadband network. There are thousands of public safety entities around the country, and many have a strong need for support by someone who understands public safety's communications needs and can explain how and why to embrace this new network. Finally, priority communications for public safety – expressed in the concept adopted by the FCC of preemptive use of spectrum on the network during emergencies – has to be implemented in an effective and responsible manner by an organization rooted in public safety. No priority system of the type envisioned by the FCC exists today, and the PSST looks forward to working with the FCC and potential private partners to develop such a system that will meet public safety's needs.

Unfortunately, these responsibilities have not been matched by an equally clear and appropriate source of funding to assure their successful accomplishment. There is no allocation in existing law – nor in pending legislation – for funding to meet the PSST's needs. Although many core public safety organizations have contributed the time and knowledge of their executives and managers to assist the PSST, those organizations are challenged to meet their own budgetary needs and cannot provide meaningful financial support to the PSST. There is also a requirement in

the FCC's Second Report and Order that the PSST oversee the relocation of the narrowband channels that resulted from a rebanding in the 700 MHz spectrum. Our estimate of this cost is approximately \$80 million, and we anticipate that the funds for this task will come from the private side of a public/private partnership.

In the total absence of conventional funding alternatives, the PSST supports the public/private partnership concept where the private partner(s), which will be using some of the shared spectrum for its/their own commercial purposes and profit, are the principal source(s) of financial support to the PSST. For example, the Second Report and Order envisions that the use of public safety spectrum by the private partner(s) will be under a lease. We have suggested that there be lease payments that are reflective of the value of access to the PSBL spectrum.

There is one item we would like clarify again. At no time during this process has the PSST ever expressed a preference for any particular type of private partner(s) or commercial business plan – incumbent or new entrant, wholesale or retail, open access or operator-controlled access. We were opposed to any limitations on participation in the auction that might deprive public safety of the opportunity to partner with any entity that could best construct and operate a nationwide wireless broadband network capable of meeting public safety's legitimate mission critical communications needs and have welcomed regional or national licensing options.

We do understand that a public/private partnership structure and the shared broadband network must meet the basic needs of both its commercial and its public safety constituencies or it will work for neither.

We also understand it is our role in the process to be the advocate for the needs of the public safety community. Public safety users need

broader network coverage than is commercially available and also “higher than commercial” levels of network reliability, survivability and redundancy. All of these things cost money that a commercial wireless operator would just as soon not spend, and this is the reason these things are not available to the public safety community today. Striking that right balance is one of the most important challenges we face.

So where are we today? We have worked hard to achieve consensus within the public safety community to move this process forward. All of the major national public safety organizations, with the exception of the National Emergency Number Association (NENA), have reached consensus on the preferred approach for success. The consensus organizations include the IACP, the Major Cities Police Chiefs Association (MCC), the National Sheriffs’ Association (NSA), the Major County Sheriffs’ Association (MCSA), the International Association of Fire Chiefs (IAFC), the Metropolitan Fire Chiefs Association (Metro Chiefs), the Association of Public-Safety Communications Officials-International (APCO) and the National Emergency Management Association (NEMA). In addition, the PSST and the National Public Safety Telecommunications Council (NPSTC) have endorsed the following consensus approach.

The consensus position is for Congress to adopt legislation that will direct the FCC to remove auction requirements from the D Block and to instead allocate it to the national PSBL. This would then give public safety 20 MHz of broadband spectrum that would enable us to proceed with public/private partnerships through a Request For Proposal (RFP)-type process that would identify the best private partner(s) to build out the network. This will also give us the ability to develop strong public/private partnerships locally and nationally that will provide the private funding necessary through network leasing and sharing agreements without

requiring dependence on federal, state and local funding or auction revenue.

The 700 MHz auction conducted in early 2008 far exceeded expectations in terms of revenue raised, netting nearly \$20 billion for the Treasury, well above the \$10.2 billion revenue target reflected in the Deficit Reduction Act of 2005. That performance should set to rest concerns regarding the possible undesirable budgetary impacts that could be associated with setting aside spectrum to craft a solution for public safety's critical communications needs.

The public safety consensus organizations agree with the approach originally envisioned by the FCC that there will be times that public safety will have a critical need to access more than the 10 MHz of spectrum currently allocated to the PSBL. The consensus position to allocate the D Block to public safety, rather than to auction the spectrum, supports that need but also gives public safety more options in selecting their private partner(s) rather than just partnering with the winner(s) of an auction. We believe that this will produce a better outcome, and want to emphasize that this is all about developing a new nationwide wireless broadband network for public safety.

A number of local entities, regions and states have submitted waiver requests to the FCC expressing the desire and urgent need for early build-out of the nationwide public safety network in their area. The PSST and the consensus group have endorsed such early build outs as a way to not only begin development of the nationwide network but also as a way to gain early lessons from such effort. Most of the entities requesting waivers have also indicated support for nationwide interoperability and roaming, and full build-out of the network not only in major urban areas but in more rural and remote areas that may not have access to broadband today.

On August 14, 2009, the FCC Public Safety and Homeland Security Bureau issued a Public Notice seeking comment on the waiver requests and other related matters. In support of the waiver activities, the PSST asked the NPSTC to form a Broadband Task Force (BBTF) to identify the minimum requirements to allow local and regional entities to build out in a way that will be consistent with and supportive of a nationwide network. The BBTF submitted its report to the NPSTC on September 4, 2009, and NPSTC is expected to submit it to the PSST in the near future. The PSST will then review the report and submit its recommendations to the FCC.

We in the public safety community applaud the efforts of the FCC and members of this Committee and of Congress for their support of a nationwide public safety wireless broadband network and the public/private partnership approach, and we urge you to support this consensus position. Our efforts to get a nationwide public safety wireless broadband network have been ongoing for a very long time, and now it is time for you to help us get this problem fixed!!

Ms. ESHOO. Thank you, Chief.
Mr. Barbour.

STATEMENT OF JASON BARBOUR

Mr. BARBOUR. Thank you, Acting Chairman. Chairman Boucher, Ranking Member Stearns and members of the subcommittee, thank you for providing me the opportunity to appear before you here today. My name is Jason Barbour. I am serving as the 911 director for Johnston County located in North Carolina. I am also an active captain with the town of Clayton Fire Department as well as a deputy sheriff for Johnston County. I am the past president for the National Emergency Number Association, commonly referred to as NENA. I currently serve as NENA's representative on the Public Safety Spectrum Trust, commonly referred to as the PSST. I am also a member of the Association of Public-Safety Communication Officials International, commonly referred to as APCO. While I am actively involved in all of these organizations, I am here today only on the behalf of Johnston County, a rural yet fast-growing county in eastern North Carolina. In my testimony today, I would like to make three points. First, broadband technologies provide significant benefits for emergency communications. Ensuring that public safety agencies and emergency responders are connected to broadband, wireline and wireless, must be a national priority. Second, any actions taken by Congress or the FCC must ensure that a sustainable funding source is in place to pay for public safety's access to and use of broadband. Third, any proposal for the establishment of a wireless public safety broadband network must take into consideration the needs of rural America and ensure access to the network in all areas of the country.

How do we get there in rural America? No one doubts the potential of broadband for public safety in areas urban and rural. However, in rural America, there are legitimate questions concerning how wireless public safety broadband network can be paid for and built out. No one doubts that public safety agencies would love to have access to their own network and operate their own broadband network but the reality is, in many areas there is simply no way to fund the build-out and continued use of such networks. Whether public safety has access to 10, 20 or 50 megahertz of spectrum, the spectrum is only as good as the ability to pay for it and build it out. That is why I along with the rest of the national public safety community was particularly interested in the FCC's original D block concept in which public safety would have access to a broadband network, but would not have to pay for the cost of building the network. Whether or not the original D block public partnership can still work is a legitimate question. A known funding source and a known build-out schedule 2 years ago and, regardless of the specific plan that is adopted, they remain critical issues today, particularly in rural America.

I commend all the organizations involved in this debate for putting the ideas on the table intended to result in positive solutions for public safety. Without commenting on any of the individual proposals, I believe several questions must be answered. First and foremost, is there an identified reoccurring funding source to pay for access to and use of the network for all areas? Would the pro-

posal result in a nationwide wireless broadband network? Is there a high likelihood of success that such a network will be built out nationally on a known schedule? Will the network meet the reasonable and important needs of public safety? Will the plan ensure that the public safety network remains current and benefits from commercial research and development? If the plan calls for public/private partnerships, is there sufficient oversight by the FCC or other appropriate authority to ensure that such agreements are adhered to? If an approach is adopted that does not involve an auction with build-out requirements by commercial entities, is there sufficient evidence to conclude that there is a need for additional spectrum in rural areas and, therefore, an assurance that non-mandatory partnerships will emerge and result in a nationwide network being built in less populated areas? I am particularly interested in the answers to these questions for rural America.

Whatever the details of any plan may be, it is essential that they are reviewed to ensure that the result is a nationwide network or network of networks sufficient to meet the needs of public safety and that near- and long-term funding is available for public safety to access and use the network.

Thank you for the opportunity to be here today.

[The prepared statement of Mr. Barbour follows:]

**STATEMENT OF
JASON BARBOUR, ENP**

On Behalf of the

COUNTY OF JOHNSTON, NORTH CAROLINA

Before the

**UNITED STATES HOUSE OF REPRESENTATIVES
SUBCOMMITTEE ON TELECOMMUNICATIONS, TECHNOLOGY, AND THE
INTERNET OF THE COMMITTEE ON ENERGY AND COMMERCE**

A National Interoperable Broadband Network For Public Safety: Recent Developments

September 24, 2009

Chairman Boucher, Ranking Member Stearns, and Members of the Subcommittee, thank you for providing me the opportunity to appear before you today. My name is Jason Barbour and I am a nationally certified Emergency Number Professional (ENP), serving Johnston County, North Carolina as the 9-1-1 Director. I am also an active Captain of the town of Clayton, NC Fire Department and a sworn Deputy Sheriff for Johnston County. I am a Past-President of the National Emergency Number Association (NENA), an organization consisting of nearly 7,000 members in 48 chapters across the U.S., Canada and Mexico. Currently, I serve as NENA's representative on the board of the Public Safety Spectrum Trust (PSST). Finally, I am also a member of the Association of Public-Safety Communications Officials International (APCO). While I am actively involved in all of those organizations, I am here today only on behalf of the County of Johnston, North Carolina, a rural, yet fast growing county in Eastern North Carolina.

I have been working in the field of public safety communications for the better part of two decades and know firsthand the importance of our nation's 9-1-1 and public safety communications systems. During that time I have seen many life-saving technological developments. That being said, I can say without question, that I have never been as excited about a technological advancement as I am about the possibilities for 9-1-1 and public safety communications that will be enabled by broadband networks, services and applications.

In my testimony today I would like to make three points. First, broadband technologies provide significant benefits for emergency communications and, therefore, the citizens that rely

on public safety services. Ensuring that public safety agencies and emergency responders are connected to broadband (in all forms) must be a national priority. Second, any actions taken by Congress or the FCC must ensure a sustainable funding source to pay for public safety access to, and use of, broadband. Third, any proposal for the establishment of a wireless public safety broadband network must take into consideration the needs of rural America and ensure access to the network in all areas of the country.

I am here today on behalf of Johnston County, one of the nation's top 100 fastest growing counties, but still a rural area that faces some broadband deployment challenges. Johnston County is 800 square miles with a population of 163,000. The largest town, Clayton, has a population of 13,000. Given our close proximity to the research triangle in Raleigh, Johnston County 9-1-1 and emergency services agencies are more fortunate than many of our neighboring counties to the east in that we currently have two commercial wireline broadband service offerings available and four commercial wireless companies that provide wireless voice and data services. Today, Johnston County 9-1-1 relies exclusively on commercial offerings for wireline and wireless broadband service. We have approximately 300 police, fire, and emergency medical vehicles outfitted with mobile data cards providing wireless mobile data service. We work hand in hand with commercial operators in assuring we have the services we need, which are generally quite reliable. However, there are some gaps in coverage where service is not available. And currently we only pay to provide such access in vehicles, not for handheld devices in the hands of responders. In the not-so-distant future, we envision having our 9-1-1 center and all of our public safety agencies with high-speed wired broadband connections and all public safety agencies and individual responders with access to a robust high-speed 4G wireless broadband network.

Why Broadband?

When I got my start in public safety, the communications systems we relied on were technology challenged. There was no data communications among responders at all. The data that was shared at an agency level was done via low-speed telephone connections. There were large coverage gaps for public safety UHF/VHF radio communications, and the coverage was sporadic. When a deputy wanted to share information that was sensitive in nature, the officer needed to find a payphone because there was no encryption to allow for secure communications.

Today, we no longer rely on a low-speed data line to access the National Crime Information Center (NCIC) system and the North Carolina Division of Criminal Information Center. We can now attach and view photos of missing and wanted people. We have real-time access to jail recorders. We can access the North Carolina AWARE warrant system, view an area hospital's emergency room status, Web EOC, and transmit EKG's to hospitals from Ambulances. All of this can be done from the seat of a vehicle using commercially provided advanced wireless data services.

Imagine the possibilities of a high-speed broadband future for emergency communications. 9-1-1 centers will be connected to broadband and will be able to receive images and video directly from a citizen at the scene of an accident or a robbery. Real-time videos or images from the public will be able to be directed to responders in the field over a wireless public safety broadband network. Responders can use the wireless broadband system to download information on victims at the scene (such as electronic health records) or information on where to cut open a vehicle to extricate a victim without endangering responders. Building blueprints and information about the contents contained in buildings could be readily obtained. Incident management preplans or real-time video training on how to effectively handle an unknown hazardous material at the scene of the spill could be provided. These are just a few examples of what the broadband future could look like.

With that brief background on where we came from and where we want to go with broadband capabilities, I will offer you a word of caution based on an experience in Johnston County. Recognizing the limitations of our existing radio system, we decided to implement an 800 MHz digital trunked radio system in 2000. The system greatly improved our radio communications capabilities, system capacity, and coverage area. We also ensured that all public safety agencies in Johnston County were on the network and interoperable, and the county paid for the radios used by each local agency. While the system was vastly superior to the older VHF/UHF systems, it was also a lot costlier to operate and maintain. Individual radios went from \$300 to \$3,000 or \$4,000. While the county paid for initial local agency radio systems, many of these local agencies were shocked at the price tag for individual radios when they needed to be replaced. To this day, local agencies are struggling to find money to pay for replacement radios.

I provide this example to illustrate a key point of my testimony. Access to spectrum alone is not sufficient, particularly in rural areas. Along with spectrum, there must be funding necessary to operate, maintain and utilize the network for public safety. As we look to the future of a wireless broadband network for public safety, we must ensure that initial *and* recurring funding is available for public safety to effectively utilize the network. If we are struggling to find the funds necessary to access the voice radio system we already have in Johnston County, how can we be expected to pay for a wireless broadband system? We must also ensure that public safety agencies are able to take advantage of the substantial research and development of the commercial wireless industry to ensure that radios on the network no longer cost \$4,000 and that technology in the hands of emergency responders stays current.

How Do We Get There In Rural America?

No one doubts the potential of broadband for public safety in all areas, urban and rural. However, in rural America there are legitimate questions concerning how a wireless public safety broadband network can be paid for and built out. Any public safety agency would like to have access to a public safety owned and operated wireless broadband network. But the reality is that in many areas there is simply no funding to build such a network. Whether public safety has access to 10, 20 or 50 MHz of spectrum, the spectrum is only as good as our ability to pay for and build a network. This is why I, along with the rest of the national public safety community, was particularly interested in the FCC's original D Block concept in which public safety would have access to a broadband network, but would not have to pay the cost of building the network. Whether or not the original D Block public partnership can still work is a legitimate question, as it certainly failed on the first go around. However, a critical aspect of that plan was that the network would be built nationally (whether with a single national D block license or compatible regional licenses), and it would be built and paid for by a commercial partner. A known funding source and a known build out schedule were important two years ago, and, regardless of the specific plan that is adopted, they remain critical issues today, particularly for rural areas.

I commend all organizations involved in this debate for putting ideas on the table intended to result in positive solutions for public safety. Whatever the details of any plan may be, it is essential that they are reviewed to ensure that the result is a nation-wide network (or

network of networks) sufficient to meet the needs of public safety and that near and long-term funding is available for public safety to access the network. A nation-wide broadband network (or network of networks) would ensure that all public safety agencies, regardless of their size, location, expertise, or financial resources, would have the same opportunities to take advantage of the new world of broadband communications. I am concerned that absent a national framework, only those few agencies with substantial resources and expertise will be able to provide their public safety agencies and responders with state-of-the-art broadband communications. The result would very likely be islands of robust, and potentially incompatible, public safety broadband networks, surrounded by many unserved areas. Therefore, as Congress and the FCC address this challenge it is critical that any proposal be closely examined to ensure that (1) there is guaranteed buildout in all areas sufficient for public safety needs, not just those areas with the resources capable of establishing a network, and (2) there is a known source of funding for public safety to access the network.

Without commenting on any individual proposals, I believe several important questions must be answered. First and foremost, is there an identified recurring funding source to pay for access to and maintenance of the network for all areas? Will the proposal result in a nation-wide wireless broadband network (whether through a single license or numerous regional licenses)? Is there a high likelihood of success that such a network will be built out nationally on a known schedule? Will the network meet the reasonable and important needs of public safety? Will the plan ensure that the public safety network remains current and benefits from commercial research and development? If the plan calls for public/private partnerships, is there sufficient oversight by the FCC or other appropriate authority to ensure that such agreements are adhered to? If an approach is adopted that does not involve an auction with buildout requirements, is there sufficient evidence to conclude that there is a need for additional spectrum in rural areas and, therefore, an assurance that non-mandatory partnerships will emerge and result in a network being built in less populated areas? I am particularly interested in the answers to these questions for rural America.

Conclusion

In conclusion, I continue to believe that a nationwide public/private partnership model in one form or another is the only viable path towards a national, interoperable broadband public

safety network for all areas of the country. While some public safety agencies might otherwise be able to deploy their own broadband networks, and some might even be able to forge local partnerships with commercial entities, it is possible and likely that a significant number of public safety agencies will be left in the cold absent a requirement for a nation-wide network overseen by the FCC or other appropriate entity with sufficient oversight and authority to ensure such a network gets built out on a known schedule. Such a public/private partnership approach will relieve local agencies of the extraordinary cost of constructing and maintaining their own broadband infrastructure. It is also the most effective means of providing seamless, spectrum-efficient interoperability using state-of-the-art technology platforms.

Thank you for your support and the opportunity to be here today.

Ms. ESHOO. Thank you for your excellent testimony.
Mr. Black.

STATEMENT OF STACEY BLACK

Mr. BLACK. Acting Chairman and members of the subcommittee, thank you for the opportunity to appear before you today to discuss AT&T's support of public safety's proposals for the implementation of interoperable wireless broadband. As AT&T has been a leading provider of wireless data services to the public safety community for over a decade, we have a unique perspective that drives our rationale for this support. AT&T's support of public safety's desire to build out regional networks is based on our experience that agencies want the ability to tailor a network to meet their unique local needs.

First, agencies need the flexibility to choose a network management model that meets their financial as well as their communications requirements. Secondly, local agencies have a better understanding of the terrain and population centers that will or will not require coverage. Lastly, local deployments can be constructed using existing grants and procurement programs that have been traditionally used for land mobile radio and other communications at a much lower cost than what a nationwide network would entail. One of the concerns that has been expressed about this regional approach is that it may not include small and rural communities. AT&T supports a unique proposal that could dramatically reduce the cost of a typical broadband deployment, thus making it affordable to provide coverage for smaller communities. This approach has been referred to as the leveraged network model as it provides a dedicated private network experience that leverages the core infrastructure of a commercial operator. This model has the potential to jump-start deployment of regional networks since most of the core build-out has already been completed. This model addresses two primary concerns of public safety: It gives them exclusive access to spectrum, eliminating the concern of sharing with commercial users, and it reduces the overall cost by leveraging the commercial operators' existing core network and provisioning support in billing systems.

AT&T also supports and applauds public safety's recommendation of LTE as the common technology standard. Known as long-term evolution, LTE is an internationally recognized wireless standard that is for next-generation. The LTE standard will benefit public safety in many ways. First, it will ensure that each network, even those that are built independent of each other, will allow seamless roaming for visiting public safety users. It will encourage early deployment and will build momentum among public safety agencies and as more regional networks are deployed they will form the backbone of a network of networks that will ultimately provide public safety with interoperable broadband across the country. Second, it will allow public safety to leverage the massive economies of scale of the commercial operators who are also deploying LTE at 700 megahertz. Third, it will allow a region to confidently design and deploy a network knowing that it will be interoperable with later deployed networks. Lastly, AT&T envisions

that public safety users will be able to roam from networks onto commercial networks as seamlessly as cellular phones roam today.

Finally, AT&T supports public safety's request to reallocate the D block as public safety spectrum to provide a full 20 megahertz of broadband capacity. Over the last 5 years as AT&T has introduced next-generation wireless data capabilities, public safety applications have become more bandwidth intensive and average data usage has doubled each year from 11 bits per user in 2005 to almost 200 megabits per user per month in 2009. Our experience tells us that as public safety deploys LTE, the vendor community will begin to develop new applications that require even more bandwidth. By providing the full 20 megahertz now, public safety will be able to deploy a single-bay station radio and devices that utilize the contiguous spectrum instead of being forced to add non-contiguous spectrum at a later time which will require new equipment and additional taxpayer expense.

Another thing to consider is that public safety is unique in that during an incident or an emergency, network demand is typically concentrated in a small geographic area. While commercial carriers can deploy additional capacity at preplanned events, public safety does not have the luxury of planning the next disaster or incident that will likely involve multiple jurisdictions in a defined geographic area. Therefore, having the full 20 megahertz throughout a broadband deployment will provide public safety the additional capacity when needed most, during emergencies.

Reallocating the D block to public safety while using the leverage network model will benefit the smaller and rural communities that may not have all the funding needed to deploy a dedicated broadband network. Not only will the build-out cost be reduced but it also provides these communities the spectrum needed to incent a commercial operator to enter into a public-private partnership that will result not only in broadband for public safety but for the community as well.

In closing, we encourage you to engage the public safety community on these proposals directly as they are the true beneficiaries of them. However, AT&T feels strongly that this is the last and best opportunity to provide public safety with the broadband capability that it needs in pursuit of its mission. It is simply the right thing to do.

Thank you, and I am prepared to answer any questions.

[The prepared statement of Mr. Black follows:]

WRITTEN STATEMENT OF:

STACEY BLACK
ASSISTANT VICE PRESIDENT – MARKET DEVELOPMENT
MOBILITY PRODUCT MANAGEMENT
AT&T

BEFORE THE:

UNITED STATES HOUSE OF REPRESENTATIVES
COMMITTEE ON ENERGY AND COMMERCE
SUBCOMMITTEE ON COMMUNICATIONS, TECHNOLOGY AND THE INTERNET

SEPTEMBER 24, 2009

Chairman Boucher, Ranking Member Stearns and members of the Subcommittee:

AT&T appreciates the opportunity to discuss the best means for public safety organizations to benefit from the implementation of interoperable wireless broadband capabilities. As AT&T has been a leader in providing wireless data capability to the public safety community for over a decade, we have a unique perspective on these issues, and are as committed as ever to contributing to viable and cost-effective solutions.

Fundamentally, AT&T supports the deployment of regional wireless networks to address the need for robust and interoperable broadband capabilities to meet the needs of local public safety organizations, particularly first responders. The reason is simple: local public safety agencies best understand their specific requirements and challenges and need the flexibility to choose a network management model that meets those needs.

Specifically, AT&T supports a rational new approach that enjoys the widespread support of the public safety community – one that goes beyond the more entrenched notions of either mandated network-sharing requirements, on the one hand, or a prohibitively expensive all-Greenfield approach on the other – that would dramatically reduce the cost of a typical

broadband deployment and still ensure that local public safety institutions enjoy flexible, next-generation capabilities. This so-called “Leveraged Network Model” would entail the following:

- First, Congress should reallocate the 700 MHz D Block (758-763 MHz and 788-793 MHz bands) to public safety to ensure state-of-the-art broadband capability with sufficient capacity (20MHz), as public safety is requesting.
- Congress or the FCC should mandate the use of the 3GPP LTE air interface standard to ensure interoperability nationwide and the ability to share in economies of scope and scale with commercial providers in the 700 MHz band.
- Local public safety organizations should take advantage of existing grant and procurement programs to fund their deployments, such as Urban Area Security Initiative grants, Community Oriented Policing grants, or grants from the Department of Homeland Security Office of Emergency Communications.
- Eligible public safety entities would issue RFPs for construction of regional public safety networks that would leverage existing commercial infrastructure to minimize costs, maximize efficiency, and ensure rapid deployment. This process therefore would allow public safety to determine capital and operational expense projections and select the network management model that best meets their needs.
- The commercial operator and the local public safety license holder would enter into a spectrum leasing arrangement allowing the commercial operator to host public safety-dedicated radio access network equipment that is connected to the operator’s core network.

In short, the Leveraged Network Model would provide a dedicated, private network experience that nonetheless relies in part upon the core infrastructure and provisioning, support and billing systems of a commercial operator. As such, this model would address two primary concerns of public safety: it would give them exclusive access to spectrum, eliminating the concern of sharing with commercial users, and materially reduce overall costs. In addition, commercial devices that have been provisioned with a unique network code would be deployed to allow for exclusive, non-commercial access to the dedicated 700 MHz RAN equipment; but, should a user leave the public safety footprint, the same devices would work as ordinary commercial

subscriber devices.¹

Moreover, a key component of this Model is that – consistent with the unanimous recommendation of the public safety community – it would utilize LTE as the common technology standard. The LTE standard would benefit public safety in many ways. First, it would assure that each network, even those built independent of each other, will allow seamless roaming for visiting public safety users. Second, it would encourage early deployment of this new technology and build momentum among public safety agencies such that, as more regional networks are deployed, they would form the backbone of a “network of networks” that would ultimately provide public safety with interoperable broadband across the country. Third, it would allow public safety to leverage the massive economies of scale of the commercial operators who are also deploying LTE in the 700 MHz band. Fourth, it would allow a region to confidently design and deploy a network knowing it will be interoperable with later-deployed networks.

Finally, while some might argue that public safety already has sufficient spectrum, in reality, only by re-allocating the D Block as public safety spectrum – and thereby providing a full 20 MHz of broadband capacity – would policymakers ensure that the public safety community will keep pace with next generation wireless data applications. In addition to traditional applications such as license plate retrieval and criminal history inquiries, public safety needs network capacity for bandwidth intensive 4G applications, including optical recognition systems, streaming video, VoIP applications, and collaboration tools that cannot be supported with the existing spectrum allocation. A full 20 MHz allocation now, utilizing the

¹ Indeed, AT&T has recently asked its device vendors to look into the feasibility and cost of adding the combined public safety and D Block bands into commercial devices. While we are still evaluating the results, early indications are that a device with that capability is feasible in the late 2011, or 2012 timeframe at or near commercial prices.

LTE standard, would allow the deployment of a single base station radio and devices that utilize the contiguous spectrum, which is far superior to a system whereby public safety must continually add non-contiguous spectrum – all of which would require new equipment and additional taxpayer expense.

Public safety is unique in that, during an incident or emergency, network demand is typically concentrated in a small geographic area. While commercial carriers can deploy additional capacity at pre-planned events, public safety does not have the luxury of planning the next disaster or incident that will likely involve multiple jurisdictions in a defined geographic area. Therefore, having the full 20 MHz throughout a broadband deployment would provide public safety the additional capacity when needed most - during emergencies.²

In closing, we encourage you to engage the public safety community on these proposals directly as they would be the true beneficiaries of them. However, AT&T feels strongly that this is the best opportunity to provide public safety with the broadband capability that it needs in pursuit of its mission. It is simply the right thing to do.

² In the end, implementation of the Model can assist with wireless broadband deployment in small and/or rural communities. To the extent smaller, rural communities do not fully utilize the entire 20MHz allocation, they can and should enter into public-private partnerships to allow for commercial applications over the non-public-safety portion of the spectrum. In this way, the local community could benefit from cutting edge wireless broadband technology and dedicated broadband capabilities for public safety; the spectrum would otherwise be fully and efficiently utilized for a range of applications; and the local community – through the partnership – would attain a revenue source to further fund its public safety and other initiatives.

Ms. ESHOO. Thank you, Mr. Black.
Mr. Hanley.

STATEMENT OF JOSEPH HANLEY

Mr. HANLEY. Thank you, Chairman Eshoo, Ranking Member Stearns and members of the subcommittee. Thank you for the opportunity to be here today. My name is Joe Hanley and I am a vice president at TDS, the parent company of U.S. Cellular. U.S. Cellular serves over 6.2 million customers and has received eight consecutive J.D. Power awards for highest call quality in the north central region.

In addition to commercial users, our networks serve hundreds of public safety agencies. Like other wireless carriers, we need more spectrum to support fourth-generation services. U.S. Cellular is prepared to play a significant role in the shared network I will discuss.

Two goals are essential to the public interest. First, we must provide nationwide interoperable broadband services for public safety. These services must be available throughout the Nation, not just for a few select communities. They should be provided at the lowest possible cost to taxpayers and public safety agencies. The second goal is to expand competitive broadband services for consumers. Broadband is a powerful catalyst for economic growth. However, spectrum, the life blood of broadband service and wireless competition, has become highly concentrated and more must be made available.

The good news is that these two goals are highly complementary. This is not a choice between helping public safety or providing broadband services to consumers. Shared networks and shared use mean lower costs and better services for all users, and the combined user base may be essential to getting cost-effective equipment for this band.

There are two potential paths. First, a group of public safety organizations is asking Congress to reallocate the D block, creating a combined 20 megahertz block licensed to the PSST. This proposal can provide a basis for moving forward but it needs to be enhanced to ensure a full partnership between commercial operators and public safety with a fair opportunity for non-national carriers. We are encouraged by statements suggesting that many needed elements are already on the table: Shared commercial public safety use, commercial construction and operation of the network, participation of regional and smaller carriers, and competitive bidding for partners.

Legislation must make these concepts explicit, and we recommend the following improvements. First, the legislation should require that the FCC adopt rules for a fair selection process including non-national carriers. Second, it should provide for commercial use of a reasonable portion of the overall 20 megahertz of capacity. Third, it should promote long-term stability and operator continuity similar to what the operator would have as a licensee. Fourth, it should require reasonably sized geographic areas for regional partnerships. States or the 55 regional planning areas would work.

Let us turn to the second option, which is available now to the FCC under existing law. Since the auction, there has been recognition that all-or-nothing national license contributed to the auction's failure. Consensus has developed on improvements including regional licensing and public safety has made progress on standards including a technology choice, LTE. After granting waivers for a few early builds, we propose a two-stage auction. Stage 1 would include commercial bidders and would generate revenues for the Treasury. In stage 2, for any license left unsold, the PSST could submit a bid with no monetary payment but a best-efforts commitment to build the network. Thus, after providing an opportunity for interested commercial operators to proactively bid, any remaining markets would fall back to competitive selection process run by the PSST. Thus, every market in the country would be assigned a licensee. The imperative is to get the process moving. The FCC should not wait for legislation but should develop rules now for a successful auction of D block licenses. If reallocation legislation is adopted, this work will still have moved the ball forward on standards and the FCC can readily adapt its rules.

So to summarize, shared network and shared use meets both goals: public safety and competitive broadband deployment. Either path can work, properly legislation or a two-stage auction provide it includes opportunities for full commercial partnership and non-national operator participation. We believe an auction can be successful and would generate revenues for the Treasury. The key is to move forward, and the FCC should do so now under its existing authority.

Thank you very much for the opportunity to provide this testimony.

[The prepared statement of Mr. Hanley follows:]

WRITTEN STATEMENT

of

**MR. JOSEPH R. HANLEY, VICE PRESIDENT - TECHNOLOGY PLANNING
AND SERVICES, TELEPHONE AND DATA SYSTEMS, INC.**

before the

**HOUSE SUBCOMMITTEE ON COMMUNICATIONS, TECHNOLOGY,
AND THE INTERNET**

September 24, 2009

INTRODUCTION

Good morning Chairman Boucher, Chairman Waxman, Ranking Member Barton, Ranking Member Stearns and members of the Subcommittee. Thank you for the opportunity to appear before you today on a matter of great importance to our country. My name is Joe Hanley and I am Vice President - Technology Planning and Services for Telephone and Data Systems, Inc., which is the parent company of United States Cellular Corporation.

My testimony addresses why and how to create a nationwide interoperable broadband network supporting shared use by the public safety community as well as commercial customers. A public/private partnership approach will help meet both public safety and commercial broadband goals for the spectrum in the 700 MHz Public Safety Broadband Licensee ("PSBL") and D Blocks. Properly designed, this approach involves manageable roles for government, public safety agencies and commercial operators, and the lowest possible burden on taxpayers.

U.S. Cellular is prepared to play a significant role by constructing and operating regional parts of a shared wireless broadband network meeting the needs of public safety.

Shared use of these spectrum blocks will serve the public interest. A shared network will benefit public safety agencies through economies in building and funding network infrastructure and operations, while providing added capacity in emergencies. Commercial operators will efficiently use the D Block as well as available capacity in the PSBL spectrum, while ensuring that capacity, coverage and quality are available to public safety, especially in emergencies. Moreover, future competition in broadband services depends on making this spectrum available to consumers through a variety of commercial operators, and the shared network will make that happen.

There are two potential paths to this shared network, one involving legislation and the other achievable by the Federal Communications Commission ("FCC") through new rules within the existing statutory framework. Our vision can be realized by either path. The unacceptable course is one of inaction that continues to leave this valuable spectrum idle. Whichever approach is chosen, the federal government should expeditiously proceed with adopting a process for the selection of commercial operators and creation of the shared network.

UNITED STATES CELLULAR CORPORATION

U.S. Cellular is the sixth largest mobile operator in the U.S., serving over 6.2 million customers in rural, suburban, and urban markets in twenty-six states. We provide award-winning call quality, as recognized in eight consecutive J.D. Power awards for highest call quality in the North Central Region. U.S. Cellular operates as part of a national interoperable network today. We offer national service plans through roaming arrangements with other carriers, we coordinate call handoffs with many neighboring carriers, and our engineers contribute to industry standards bodies.

U.S. Cellular's networks serve public safety needs as well as uses by residential and business customers. Hundreds of state and local public safety agencies subscribe to our services, we have deployed E911 service to over 1,000 PSAPs, and we participate in the Wireless AMBER Alerts Initiative.

Our commitment to meeting customers' needs includes the on-going deployment of cell towers and advanced technologies to provide voice and broadband services to many previously unserved and underserved areas. Like other wireless carriers, U.S. Cellular seeks additional spectrum to facilitate its deployment of fourth-generation broadband services.

PUBLIC POLICY GOALS AND OVERVIEW OF OPTIONS

This hearing aims to examine potential options for creating a national interoperable broadband network supporting uses by the public safety community. U.S. Cellular believes that there continue to be two fundamental goals for the spectrum in the 700 MHz PSBL and D Blocks. Both goals are essential to the public interest.

One goal is to provide national interoperable broadband services for public safety uses. These services are critical and must be made available throughout the nation, not just for a few select communities. These services should be provided at the lowest possible cost to taxpayers and resource-constrained public safety agencies by leveraging commercial operators' existing networks, financing capabilities, and interest in shared use of the spectrum.

The second goal is to expand competitive broadband services for consumers nationwide. As Congress recognized in funding the Broadband Initiatives Program and the Broadband

Technology Opportunities Program as parts of the American Recovery and Reinvestment Act of 2009, broadband services provide critical infrastructure for economic growth, with additional benefits for environmental, health care, educational, energy and other policy goals. However, spectrum -- the lifeblood of broadband services and wireless competition -- has become highly concentrated in the hands of the few dominant carriers, and more spectrum must be made available to ensure competition and consumer choice. This 700 MHz spectrum is highly desirable for consumer broadband services, which will spur job creation and advance the lives of Americans in many ways.

As I explain in this testimony, the goal of meeting public safety needs is advanced by continuing to pursue shared commercial uses. Congress should not view the issue as an irreconcilable choice between helping public safety or facilitating broadband services for residential and business users. These goals are highly complementary. Shared networks and shared uses of the spectrum mean lower costs and greater access to advanced technologies and applications for all users. In fact, the existence of a commercial base of users may be essential to driving the necessary volumes of handsets and other devices that can support this spectrum. As commercial use of this spectrum rises, the prices for public safety handsets and public safety services decline.

Among the potential paths to creating this network is adoption of legislation along the lines of a proposal by eight public safety organizations. Such legislation, enhanced by necessary modifications, would re-allocate the D Block to the PSBL and direct the PSBL to employ an open, fair process to select regional commercial partners for network construction and shared use of the 20 MHz of spectrum.

Alternatively, the FCC could use its existing authority to re-auction the D Block under rules which promote a successful auction. In order for an auction to succeed, these rules must include regional licenses, clear technical and build-out standards, pricing and capacity terms for public safety uses, and an opportunity for the PSBL to acquire licenses that fail to attract a commercial bidder. Waivers could be granted for a limited number of early builds of public safety systems and we would support the FCC doing so with appropriate safeguards to assure interoperability and facilitate eventual integration into the nationwide network.

With or without legislation, the federal government should move forward with a strong sense of urgency to adopt a process to select commercial operators and create the shared network. The goals, both public safety and commercial, that drive this initiative are too important to permit further delay.

OPTION OF LEGISLATION FOR THE SHARED NETWORK BASED ON THE PROPOSAL OF EIGHT PUBLIC SAFETY ORGANIZATIONS

Since the failure of the D Block auction, various legislative options have been discussed as ways to address the broadband wireless needs of the public safety community. In particular, on May 28, 2009 eight public safety organizations¹ reached a consensus to petition Congress to reallocate the D Block for public safety use and create a single 20 MHz nationwide block of 700 MHz spectrum to be licensed to the PSBL. In the past few days a legislative proposal has been circulated, reflecting this effort.

Many features of this legislative proposal are sound and can provide a basis for moving forward, provided they are modified and enhanced to ensure a full partnership between commercial carriers and public safety, with a fair opportunity for participation by non-national carriers. Specifically, U.S. Cellular supports four key aspects of this proposal, based on the text of the legislative proposal as well as our understanding of its intent as articulated by PSST and others in the group since the announcement of May 28.²

Positive Features of the Proposal. First, public safety and commercial customers would share use of this spectrum. As discussed earlier, shared use benefits the public safety community as well as commercial broadband users. According to the PSST, “the PSST has never sought exclusive or full-time use of the full 20 MHz” of this spectrum and “most of the D Block spectrum would not be used by public safety entities on a daily basis.”³ On the other hand,

¹ Association of Public-Safety Communication Officials, International Association of Chiefs of Police, International Association of Fire Chiefs, Major Cities Chiefs Association, Major County Sheriffs’ Association, Metropolitan Fire Chiefs Association, National Emergency Management Association, and the National Sheriffs’ Association.

² Letter filed by the Public Safety Spectrum Trust Corporation in FCC Docket Nos. PS 06-229 and WT 06-150 (June 29, 2009).

³ *Id.* at 2.

during significant emergencies public safety entities would need more than 10 MHz and this proposal could accommodate those conditions.

Second, under the proposal as we understand it, the PSBL would utilize commercial operators in a public/private partnership approach to construct and operate the nationwide interoperable broadband network. This proposal correctly seeks to leverage the commercial operators' financing capabilities, operating efficiencies and advanced technologies. The resulting savings will promote rapid build-out, greater coverage, and lower costs for both public safety and commercial users. According to the PSST, "one of the most important benefits of the public-private partnership is that the D Block licensee(s) will provide many different types of resources – not just financial – that are necessary to build out the public safety broadband network The PSST anticipates that these carriers would be able to provide commercial services using a portion of the spectrum."⁴

Next, the PSST and others have recognized the benefits of partnering with carriers on a regional basis and creating opportunities for smaller and rural carriers. The PSST stated: "the PSST (and, in some areas, local public safety entities) would team with various carriers to accomplish the build-out of the public safety network."⁵ Auction 73 mistakenly offered the D Block as a nationwide license. Regional public/private partnerships would attract many smaller carriers that could build on their existing network infrastructure and operations in an area. These regional carriers would be more responsive to the varying needs of public safety agencies. Additionally, with multiple operators building area networks, network deployment will be faster, more extensive and more reliable than under a nationwide or mega-region approach.

Fourth, the PSST's public statements clearly envision a competitive bidding process for the selection of commercial carriers in the regional public/private partnerships.⁶ U.S. Cellular believes that the process of selecting commercial operators on a region-by-region basis must be

⁴ Id. at 2-3.

⁵ Id. at 3.

⁶ Id.

fair and open, not biased in favor of the dominant national wireless carriers. Smaller and rural carriers have infrastructure, operations and relationships with public safety entities in many communities; they would be attractive partners for building and operating the shared network in many areas

Improvements to the Legislative Proposal. These aspects of the proposal are encouraging. U.S. Cellular believes that a legislative solution based on the public safety proposal could be a useful catalyst and starting point. In certain areas, the proposal needs to be enhanced to assure more explicitly full, fair, and efficient commercial participation.

The proposal would replace the FCC auction with a selection process run by the PSBL and in some areas by local public safety entities. The PSST is a highly capable organization, but would have to develop procedures for partner selection without an institutional history of conducting competitive bidding for projects. Local entities employ a wide range of processes with varying degrees of openness, fairness, effectiveness and speed. FCC rules will have to establish the standards for the competitive selection process (or processes). The legislation should require that the FCC adopt rules for a fair process that creates opportunities for smaller and regional carriers to participate.

Regarding the terms for shared use of the network, any allocation of this spectrum to the PSBL should include standards for commercial uses of portions of this spectrum during non-emergency and emergency conditions. Properly designed, the shared network will balance and advance both public safety and commercial broadband services. However, Congress cannot risk leaving to the discretion of public safety entities whether they want to reserve all of this valuable spectrum and exclude commercial broadband services. There is too much underutilized spectrum and there are too many barriers to competitive broadband services, and allocating this spectrum to the PSBL should not add to these public harms. Any legislation must establish a framework for commercial participation that promotes long-term stability and operator commitment. In order to fully leverage the advantages of a shared network, operators must have confidence that the capacity made available under this partnership will be available on a long-term basis to support commercial operations.

Similarly, the legislation must address the definition of geographic areas for the partnerships. A national or mega-region partnership model would preclude the participation of smaller and rural carriers, impede creation of the shared network, and exacerbate the excessive concentration of spectrum that exists. On the other hand, municipality or county-sized partnerships would foster huge difficulties in covering rural areas (resulting in “haves” and “have nots”) and in creating a nationwide interoperable network. U.S. Cellular believes that a reasonable size for a partnership would be at the state level or for one of the 55 regions already established by the FCC to coordinate state and local public safety wireless communications.

Legislation addressing these and other issues could provide a workable path to a national interoperable broadband network supporting shared use by the public safety community as well as commercial customers. To serve the public’s needs, any such legislation must proceed expeditiously, all the way through selection of regional commercial operators and creation of the shared network. Delays would harm public safety users as well as commercial broadband users.

As Congress examines the public safety organizations’ proposal as well as other proposals, any legislation should explicitly address the points I discussed: (1) public safety and commercial customers share use of this spectrum; (2) use commercial operators to construct and operate the shared network; (3) assurances of long-term partnership that allows commercial operators to build the network’s commercial capacity into their business plans; (4) create opportunities for smaller and rural carriers through regional public/private partnerships; (5) fair, open, effective and speedy processes for selection of commercial operators; (6) standards for commercial uses of portions of this spectrum; and (7) reasonable geographic sizes for the public/private partnerships.

OPTION OF FCC RE-AUCTION OF D BLOCK WITHIN THE EXISTING STATUTORY FRAMEWORK

An alternative path exists within the current statutory framework to create a national interoperable broadband network for shared public safety and commercial uses. After adopting improved rules, the FCC could conduct a successful D Block auction that attracts commercial bidders and supports public safety’s interoperability, technical performance, reliability, coverage, capacity, and other requirements.

Auction 73 failed to attract serious bids to the D Block when it offered a national license and left for post-auction negotiation major aspects of the obligations and rights of the licensee. Since the failure of the D Block auction in March 2008, there has been substantial progress in developing solutions for its shortfalls. Through two rounds of comments and reply comments at the FCC, there was widespread agreement on many key points for designing a successful re-auction. As a highlight, public safety organizations, carriers of all sizes and equipment suppliers recognized benefits of regional licenses (not nationwide or mega-regions) to create a broadband network that covers the nation with interoperability.

Additional progress has come from the recent efforts by public safety organizations that endorsed fourth-generation LTE (long-term evolution) technology and developed a set of requirements for this network. Simultaneously, industry standards groups of carriers and equipment manufacturers are moving forward with specifications for LTE which address many issues in creating this national interoperable broadband network. Removing technical uncertainties makes the re-auction more attractive for commercial operators as well as future public safety users. Moving forward with an auction would give handset and chipset manufacturers greater business certainty to support development of band-specific solutions in their equipment.

Along with U.S. Cellular's interest in bidding for D Block regional licenses under a public/private partnership, we believe that there will be many other serious bidders in a properly-designed auction. Most commercial operators have a strong need for more spectrum in some markets in order to deploy fourth-generation broadband services. (In contrast, the two dominant national carriers have accumulated huge amounts of spectrum through mergers and auctions (in several important cases taking advantage of auction rules strongly in their favor involving mega-regional licenses and package bidding).) The 700 MHz D Block has excellent propagation characteristics, and many carriers have expressed their interest in regional licenses in this band.

To help make the auction successful, the FCC's rules could provide a role for the PSBL similar to what was proposed by the eight public safety organizations. The auction would require commercial licensees to satisfy the minimum bid and the technical, coverage, shared capacity, and other requirements for each region of the shared network. Most licenses should

attract commercial bidders. For any license that remains unsold after the stages of the auction for commercial bidders, the PSBL could submit a bid with no monetary payment to the U.S. Treasury but with its commitment to use its best efforts to create the shared network in those regions. The PSBL would then proceed with a competitive selection of commercial operators for the public/private partnership in those regions.

The FCC could grant a limited number of waivers to public safety entities for test-bed early builds in the PSBL band using LTE technology. Properly selected based on technical and financial qualifications, a few waivers for demonstration networks could help meet the needs of the public safety community and develop useful experience with technologies and services. However, early builds of too many individual public safety systems could increase the difficulty of achieving a nationwide interoperable system – especially in deploying services to high-cost rural areas – and could impair the efficiencies of shared networks and shared use of the PSBL and D Blocks.

One difference between the legislative proposal of the eight public safety organizations and FCC re-auction of the D Block is in revenues coming to the U.S. Treasury. The re-auction would raise revenues to the U.S. Treasury; the most recent proposal from the FCC would establish minimum opening bids at \$750 million for D Block licenses. Carriers have been urging the FCC to make more spectrum available for them to bid at auctions. In contrast, the competitive selection process under the legislative proposal would not result in any payments to the U.S. Treasury. While such revenues should not be a decisive factor in creating this shared network supporting the public safety community, Congress may give some weight to this distinction.

The FCC should not wait for legislation, but should instead take a “parallel path” approach. The FCC should promptly issue a further notice of proposed rulemaking with the aim of adopting new rules for a successful auction of D Block licenses. If legislation changes the framework, the process of creating the network would benefit from these efforts and the FCC could readily adapt its rules.

MINIMIZING THE BURDEN ON TAXPAYERS

In creating a nationwide interoperable broadband network supporting the public safety community, the U.S. should minimize the burden on taxpayers. This large project must leverage the existing wireless infrastructure and operating efficiencies of commercial operators. Moreover, by expeditiously moving forward with the selection of regional commercial operators, construction and operation of the shared network would fit with and take advantage of the efforts of carriers to deploy fourth-generation broadband systems.

The shared network approach and competitive selection of regional commercial operators should in all or almost all areas finance the network and allow discounted, reasonably-priced services for the public safety community. Shared commercial uses of this spectrum for broadband services will direct the private sector's operational capabilities, financial capacity and efficiencies to the benefit of the public safety community. This approach will minimize the burden on taxpayers of broadband public safety services. Yet, there may be a few areas and some public safety entities requiring targeted government financing to build, operate and use this network.

Conducting the FCC re-auction of the D Block or competitive selection of commercial operators by the PSBL would identify the areas in which the private sector commits to deploy the shared network satisfying public safety requirements. Congress should allow this market-based approach also to identify any areas requiring targeted government funding, and then make the necessary appropriations. Again, the selection of commercial operators accessing such targeted funding should proceed without delay.

CONCLUSION

Creating a national interoperable broadband network for use by the public safety community should be achieved through a shared public/commercial network and regional public/private partnerships. The shared network will promote the two goals of meeting public safety needs and expanding commercial broadband services, all at the lowest possible burden on taxpayers. There are two potential paths to this shared network, one requiring legislation based on a proposal by public safety organizations and the other achievable by the FCC through new

rules within the existing statutory framework. Both are workable paths and vastly superior to simply doing nothing.

U.S. Cellular is prepared to play a significant role by constructing and operating regional parts of a shared wireless broadband network meeting the needs of public safety. Many commercial operators want and need additional spectrum for broadband services, and reasonable rules and geographic scope for regions of the shared network would attract bids. The federal government should expeditiously proceed with adopting a process for the selection of commercial operators and creation of the shared network.

Thank you for the opportunity to provide this testimony.

Ms. ESHOO. Thank you, and I apologize for mispronouncing your name. It is because they have misspelled your name on your card. They have an E on it. So you are Hanley, not Haneley. Thank you very much for your testimony.

Doctor, let us see if I pronounce your name correctly, Liopiros. Welcome.

STATEMENT OF KOSTAS LIOPIROS

Mr. LIOPIROS. Acting Chairman Eshoo, Ranking Member Stearns and distinguished members of the subcommittee, thank you for inviting me to discuss the issue of a national interoperable broadband network for public safety. My name is Kostas Liopiros and I am the principal of the Sun Fire Group, an independent technology management consultancy located in Alexandria, Virginia.

Sound policy dictates that spectrum should be allocated and assigned in a manner that benefits all Americans. The approach that best serves both the public safety community and consumers will be to auction the D block solely for commercial use with the proceeds of the auction used to help fund a nationwide public safety broadband network on the 10 megahertz of 700 megahertz spectrum that has already been allocated for public safety. This approach will provide the funds needed to develop a state-of-the-art interoperable public safety broadband network while providing sorely needed spectrum for the advanced wireless broadband services that consumers now demand.

Public safety communications are critically important for the public welfare and they need to be improved, especially in support of first responders. In general, public safety communications systems are still not fully interoperable, making it difficult for public safety agencies and first responders to communicate with one another. Further, public safety systems generally do not provide the wireless broadband capabilities increasingly commonplace in the commercial market that are becoming essential to the sharing of data. The federal government has allocated a great deal of spectrum in order to solve these problems. Nearly 100 megahertz of spectrum, 99.7 megahertz to be precise, has been allocated for public safety use. Of this nearly 100 megahertz total, less than about 17 megahertz between 150 and 160 megahertz is used currently to support the majority of public safety communications systems. The remaining spectrum which has been allocated to public safety since 1996 is still not widely used. This includes the 24 megahertz of prime spectrum and 700 megahertz band of which 10 megahertz has been designated for public safety broadband services.

At this point, lack of spectrum is not the key impediment to improving public safety communications. Congress has granted public safety spectrum for free but as you have heard many times today, funds to use the spectrum to construct a nationwide broadband network are still lacking. Public safety agencies need funding to build and maintain a public safety broadband network in the 700 megahertz band. With the current economic crisis and severe resource constraints that confront most local and state governments, obtaining these funds is even more challenging than ever. Without financial support, a nationwide interoperable broadband public safety network will not be possible.

Congress needs to address the funding needs, especially as public safety moves to adopt broadband communications. As a first step, I recommend that Congress should strongly consider legislation to enable the FCC to auction the 700 megahertz D block for purely commercial use and direct the proceeds of that auction to the public safety community for the construction and maintenance of a public safety broadband network. Although the proceeds from the auction may not be sufficient to fully fund a nationwide public safety broadband network, they will provide a very substantial and valuable down payment on the network, kick-starting construction and making the remaining funding challenges much more manageable than before.

Now, the existing 10 megahertz of 700 megahertz spectrum that has already been allocated to public safety is, I believe, sufficient to support an interoperable broadband network, especially given the new efficient wireless broadband technologies now becoming available. More than 10 cities and/or states have already sought FCC approval to begin construction of broadband networks on the existing 10 megahertz of public safety spectrum in the 700 megahertz band using long-term evolution technology, which is the recommended follow along to the GSM standard.

A number of public safety organization agencies have also endorsed the use of long-term evolution technology for constructing public safety broadband networks. LTE has multiple and scalable channel bandwidths and by design can accommodate the allocations in the 10 megahertz public safety broadband plan. By adopting LTE technology, public safety can leverage the ongoing commercial developments and infrastructure and equipment to reduce network deployment and operation costs.

Unlike public safety, however, the commercial wireless industry does face a spectrum crunch. Growing demands for new advanced broadband services including wireless broadband can be met only if sufficient spectrum is available for wireless carriers to provide these services. Wireless carriers in the United States have estimated the wireless industry will need access to at least an additional 200 megahertz of commercial spectrum within 5 years in order to meet growing consumer demand. That is a 5-year forecast. The International Telecommunications Union in studies preparatory to the 2007 World Radio Conference, WRC-07, has estimated that by the year 2010 about 1 gigahertz of additional spectrum will be needed globally. Auctioning the 700 megahertz D block for commercial purposes would enhance the opportunities for the provision of competitive broadband services by existing carriers as well as new entrants. Of course, 10 megahertz of spectrum will not in itself alleviate the projected commercial spectrum shortage. Clearly, more needs to be done in terms of identifying the allocated spectrum for future commercial use but is a good first step and represents the best alternative use of the spectrum I have discussed.

In ideal circumstances, unrestricted amounts of spectrum would be available to meet the demands of all commercial carriers and public safety agencies. However, that is not the case. Spectrum is a rare and important national resource. Congress must balance the needs of public safety with that of consumers and focus on the best solution that considers existing conditions and future opportunities.

Auctioning the D block for commercial use would provide a much-needed infusion of funds to jump-start the construction of a national interoperable broadband network for public safety while facilitating competition in the wireless marketplace.

Mr. Chairman, thank you again for the invitation to testify today. I welcome any questions the committee may have.

[The prepared statement of Mr. Liopiros follows:]

Written Statement of
Kostas Liopiros, Ph.D.
The Sun Fire Group
Before the House Subcommittee on Communications, Technology and the Internet
Committee on Energy and Commerce
United States House of Representatives
Hearing on
“A National Interoperable Broadband Network For
Public Safety: Recent Developments”
September 24, 2009

I. Introduction

Chairman Boucher, Ranking Member Sterns, and distinguished members of the Subcommittee, good morning and thank you for inviting me to discuss the issue of a national interoperable broadband network for public safety. My name is Kostas Liopiros and I am the principal of the Sun Fire Group, an independent technology management consultancy. Prior to establishing Sun Fire, I was with Arthur D. Little, where I managed the firm's technology and innovation practice. I have also held various positions with federal research centers in the national security and defense areas, as well as in the Office of the Secretary of Defense where I was responsible for communications, command and control policy and requirements. I hold a Ph.D. in Electrical Engineering (Information and Systems Science) from Princeton University.

My testimony today will focus on the ongoing debate about the use of commercial wireless services for public safety and the best uses of the 700 MHz D Block. Sound policy dictates that spectrum should be allocated and assigned in a manner that benefits all Americans. On the basis of my work and research into this issue, it is my conclusion that the approach that best serves consumers and the public safety community would be to auction the D Block solely for commercial use with the proceeds of the auction used to

help fund a nationwide public safety broadband network on the 10 MHz of 700 MHz spectrum that has already been allocated for public safety. This option presents the best opportunity for public safety to develop a state-of the-art interoperable broadband network, while providing sorely needed spectrum for the advanced wireless services that consumers demand.

II. Public safety spectrum requirements

There is a broad consensus that the communication capabilities of America's public safety agencies need to be improved. In general, public safety communications systems are still not fully interoperable, making it difficult for agencies to communicate with one another. Further, public safety systems generally do not provide the wireless broadband capabilities that are increasingly commonplace in the commercial market. Thus, public safety authorities have two main priorities for improving and upgrading their communication systems: interoperability and broadband capability. To that end, the federal government has allocated a great deal of spectrum to improve public safety communications.

The federal government has allocated nearly 100 MHz of spectrum - 99.7 MHz to be precise - in multiple bands, for public safety use. This includes 24 MHz of prime spectrum in the 700 MHz band, of which 10 MHz has been designated for public safety broadband services. Of the nearly 100 MHz total, less than 17 MHz (between 150 and 869 MHz) is used currently to support the majority of public safety communication systems. The remaining spectrum, allocated to public safety since 1996, is still not widely used.

Lack of spectrum is not the key impediment to improving public safety communications. Congress has granted public safety spectrum "for free" but funds to use the spectrum to construct a nationwide broadband network are still lacking. There is no debate that public safety agencies need funding to build and maintain a public safety broadband network in the 700 MHz band. Parties to the FCC's D Block proceeding widely

acknowledge that the goals of building and maintaining any public safety broadband network will not be realized unless funding can be found to support those efforts. Given the current economic crisis and severe resource constraints that confront most local and state governments, public safety agencies face even more acute funding challenges. Without financial support, a nationwide interoperable broadband public safety network will not be possible.

Identifying a dedicated source of funds to help build and maintain a public safety broadband network would be a major step forward. Congress should strongly consider legislation to enable the FCC to auction the 700 MHz D Block for purely commercial use and direct the proceeds of the auction to the public safety community for the construction and maintenance of a public safety broadband network. Although the proceeds from the auction may not be sufficient to fully fund and maintain a nationwide public safety broadband network, they would provide a substantial and very valuable down payment on the network and make the remaining funding challenges more manageable.

III. The existing 10 MHz allocation is sufficient to support a broadband network

The existing 10 MHz of 700 MHz spectrum that has already been allocated to public safety is sufficient to support an interoperable broadband network, especially if the network takes advantage of new, more efficient commercial technologies. Recent efforts to build out broadband public safety networks demonstrate that an interoperable broadband network can be deployed in a spectrum allocation of 10 MHz or less. Since then, more than ten cities and/or states have sought FCC approval to begin construction of broadband networks on the existing 10 MHz of public safety spectrum in the 700 MHz band using long-term-evolution (LTE) technology. A number of public safety organizations and agencies have endorsed the use of Long Term Evolution (LTE) technologies for constructing public safety broadband networks.

This is an excellent choice since the majority of planned commercial 700 MHz broadband networks will utilize LTE technology or a technology that will evolve to LTE

(such as high-speed packet access (HSPA). LTE, as standardized by the 3rd Generation Partnership Project (3GPP), will support multiple and scalable channel bandwidths from 1.4 MHz to 20 MHz. Thus LTE can accommodate the two 5 MHz allocations in the 10 MHz public safety broadband band.

By adopting LTE technologies, public safety can leverage the on-going commercial developments in infrastructure and equipment to reduce network deployment and operation costs. Adopting LTE as the standard for public safety broadband will also facilitate public safety use of commercial spectrum, either to support roaming or future growth in requirements.

IV. Future Developments

Public safety communications was based traditionally on the use of narrowband voice communications. Currently, there are separate spectrum allocations for narrowband voice and broadband data apparently under the assumption that the broadband system will be a data-only network and that a separate legacy voice network remains necessary. Maintaining separate dedicated allocations, however, is inefficient.

LTE will support voice-over-IP (VoIP) communications and options for supporting traditional circuit switched voice and data communications are also under development. Thus, in the future, it is possible that some or all of the 14 MHz of 700 MHz spectrum that is dedicated to narrowband voice communications could be transitioned to provide both interoperable voice and broadband data services. This would provide more efficient support of voice communications, while providing a larger swath of broadband spectrum. Eventually, the entire 24 MHz of the 700 MHz public safety band could be used to provide voice and broadband services to public safety entities throughout the country.

V. The need for commercial spectrum

Unlike public safety, the commercial wireless industry does face a spectrum crunch. Growing demands for new advanced wireless broadband services, including wireless broadband, can be met only if sufficient spectrum is available for wireless carriers to provide these services. The need for commercial spectrum capacity will only continue to grow as new broadband applications are developed and consumers increase their use of wireless broadband services. Thus, it is critical to American consumers that wireless service providers have access to sufficient commercial spectrum to provide competitive wireless broadband services.

Wireless carriers in the U.S. have estimated that the wireless industry will need access to at least an additional 200 MHz of commercial spectrum within five years in order to meet growing consumer demand. That's a five year forecast. The International Telecommunications Union (ITU), in studies preparatory to the 2007 World Radio Conference (WRC-07), has estimated that by the year 2020, about one GHz of *additional* spectrum will be needed globally.

The 700 MHz D Block is paired spectrum (5 MHz x 5 MHz), which is ideal for implementation of next generation (4G) advanced wireless broadband services. Auctioning the 700 MHz D Block for solely commercial purposes would enhance the opportunities for the provision of competitive broadband services by existing carriers as well as by new entrants. Of course, 10 MHz of spectrum will not of itself alleviate the projected "commercial spectrum shortage." Clearly, more needs to be done in terms of identifying and allocating spectrum for future commercial use. But it is a good first step and represents the best alternative use for the spectrum as I have discussed.

VI. Conclusion

Thank you for the opportunity to address the use of commercial wireless services for public safety and the best use of the 700 MHz D Block. In ideal circumstances, unrestricted amounts of spectrum would be available to meet the demands of all commercial carriers and all public safety agencies. However, that is not the case.

Instead, lawmakers must focus on the best solution that considers existing conditions and future opportunities. Auctioning the D Block for solely commercial use would facilitate competition in the wireless marketplace while also providing the public safety community with a much needed infusion of funds to build out a nationwide interoperable broadband network. Mr. Chairman, thank you again for the invitation to testify today. I would welcome any questions the Committee may have.

Mr. BOUCHER. Thank you very much, Dr. Liopiros, and thanks to all of our witnesses for their testimony here this morning.

I have several questions, and the first one I think can be answered with simple yes or no answers, and so let me go down the row. I am going to start with Chief Bratton. Dr. Liopiros has just talked about the adequacy of the 10 megahertz of spectrum currently in the hands of the public Safety Spectrum Trust for utilization of the broadband services that we hope to see built out on a nationwide basis. If I understood his comments correctly, he is suggesting that the latest generation of wireless technology, LTE, should be satisfactory to enable that 10 megahertz to serve your needs. Is there general agreement that the 10 megahertz is enough and that we can then look for alternative ways of disposing of the 10 megahertz D block? Chief Bratton?

Chief BRATTON. No.

Mr. BOUCHER. Dr. Fontes?

Mr. FONTES. It is a difficult yes or no answer.

Mr. BOUCHER. I am sorry?

Mr. FONTES. Difficult yes or no.

Mr. BOUCHER. Be brief, please.

Mr. FONTES. Pardon?

Mr. BOUCHER. Be brief, please.

Mr. FONTES. Probably not.

Mr. BOUCHER. OK. That is two no's. Chief McEwen?

Chief McEWEN. No.

Mr. BOUCHER. Three. Mr. Barbour?

Mr. BARBOUR. With my limited knowledge, no.

Mr. BOUCHER. That is four.

Mr. BLACK. No.

Mr. BOUCHER. You said no. That is five. Mr. Hanley?

Mr. HANLEY. No.

Mr. BOUCHER. OK. Well, Dr. Liopiros, you seem to be outvoted.

Mr. LIOPIROS. It is a question of requirements, sir, and I haven't really seen any good studies or analysis that said it is sufficient or not sufficient. A lot of the evidence I hear is anecdotal. Of course, 20 megahertz is better than 10 megahertz, using more capacity. Thirty megahertz, 40 megahertz is better than 10 megahertz.

Mr. BOUCHER. But you are suggesting that 10 megahertz with appropriate technology would be good for the——

Mr. LIOPIROS. I am suggesting that it would be good at least for a start. The agencies that applied for——

Mr. BOUCHER. I am going to move on because I have got some other questions, but thank you. I am not trying to cut you off. I just have limited time.

The problem of course is if we take not only the 10 megahertz currently in the hands of the trust but add to that the D block and provide that to the public safety community, then we don't have the D block available to help us in any way with the financing costs for building out in what would then be 20 megahertz of spectrum with the requisite technology. The debate up until now has focused on possible creative ways to use the D block to obtain financing for build-out of equipment in the 10 megahertz that the public safety community already has, and we are going to continue to focus on that while considering your comments that it would be

nice to have an additional allocation of spectrum beyond the 10 megahertz. We are going to look for creative ideas that will go beyond what I now have counted as four different proposals for utilization of the D block. Those four proposals are an auction that involves a public-private partnership, somewhat along the lines of the failed auction in 2008; just a straight sale of D block to a commercial provider who prevails at auction; a gift of that D block to the public safety community; and then I think Dr. Fontes put a fourth possible approach on the table today by suggesting that there be an auction to a public-private partnership of all 20 megahertz, the 10 megahertz now in the hands of public safety plus the D block. That is a proposal I think made this morning for the first time. So I am going to ask for some brief comments from each of you and my time is almost expired, so again, be as brief as you can. Of these proposals before us, do any of these appeal to you? Do you think that there is some way that if we pursued any of these approaches we would derive the financing necessary to assure that the equipment is supplied in the spectrum to have a nationwide network? I am told that the price of that might be anywhere between \$10 billion and \$20 billion, and just a pure auction of the D block I am also told might derive no more than \$3 billion, so that is about 10 percent of what the total cost would be. This is the conundrum we face, how do we go about doing this. So just a quick answer, your recommendations against the four proposals currently here, and if you don't like any of those, let me have your own idea of what you think would work. Chief Bratton, do you want to begin?

Chief BRATTON. Thank you, sir. Reinforcing my testimony that we believe it should just be given over to public safety and that would allow immediate movement of the waiver city requests where they already have the capability to start moving forward. That would allow also by implementation of those some 13, I think the number of waivers, to get up and running. We could start evaluating the efficacy of the systems that they are putting into place. And as I have testified, we believe that would be an investment and not a cost in the sense of giving it over to us. We really do believe that there is an ability to meet both major city needs but also the rural needs, as Harlin McEwen has talked about in his testimony.

Mr. BOUCHER. I assume that if it were given to you, if you subleased it or otherwise disposed of it, that would produce some amount of revenue that you could use to build out. Do you think that would produce sufficient revenue for you to build out or would you have to look to the local government in Los Angeles for the balance?

Chief BRATTON. I would be, I think, with what we are proposing, there would be no uniform way of moving forward. It really would be dependent on local, regional initiatives and—

Mr. BOUCHER. So you are saying local resources would have to supplement whatever revenue you derived?

Chief BRATTON. That is a possibility, or local resources that come in through other funding sources. It does allow for a variety of ways to fund this as far as moving forward.

Mr. BOUCHER. Thank you. Let me move on, given the limitation of time.

Dr. Fontes, just very briefly, and address, if you would, the problem in rural areas where the local resources might not be adequate to supplement whatever is derived from disposing of the D block were it given to the locality.

Mr. FONTES. And that essentially is what NENA's concern has been all along. In a report that many of my colleagues in public safety have endorsed, in that report itself it says that for many years to come, and it would take many years under this private partner relationship and then allowing public safety to negotiate agreements, it would take many years to build a near-ubiquitous service, and in the interim public safety in many parts of the country including rural America will have to rely on commercial services.

Mr. BOUCHER. Dr. Fontes, thank you. I am going to move on to Chief McEwen.

Chief McEWEN. Well, as the chairman of the Public Safety Spectrum Trust, I have been involved in discussions, ongoing discussions with all of the possible commercials. The large two players in the 700 megahertz arena are AT&T and Verizon. I have been talking with U.S. Cellular, who is seated here today. I have had discussions with rural carriers in several States and with the National Rural Telecommunications Cooperative. There are a number of people who tell me, I am not a businessman, I am a public safety person, that this is a possible outcome, a good outcome if we had that spectrum that we could partner with people in rural areas and in the major urban areas to make this happen—

Mr. BOUCHER. To make the build-out happen?

Chief McEWEN. That is right, to make a build-out using in some cases existing commercial infrastructure and in other cases possibly building out in rural areas where it needs to be built out. So I believe it is possible—

Mr. BOUCHER. OK. Thank you, Chief McEwen.

Mr. Barbour, very briefly, please.

Mr. BARBOUR. The two plans I think that only speak to funding for rural America is the continued public-private partnership auction or auctioning it all off with the proceeds going to public safety.

Mr. BOUCHER. Thank you.

Mr. Black.

Mr. BLACK. Thank you. Well, we continue to believe a bottoms-up approach, taking this at the regional level and for individual region to take into consideration the surrounding rural communities. They have existing funding mechanisms that they have available to them now. They have also grants available to them. And then of course, the lease of spectrum that they can do by having the additional 10 megahertz would provide an additional revenue source, and then finally using the leverage network model would greatly reduce the amount of capital required to build the area.

Mr. BOUCHER. Thank you.

Mr. Hanley.

Mr. HANLEY. So shared network model using 20 megahertz of spectrum and leveraging operator assets, it will be the lowest cost and that reduces the funding requirement. Shared use allowing

commercial capacity to be deployed on the network will contribute value, which will allow the cost to public safety of the network to be reduced. There are several ways to get there but the key is that we have to get to a shared model with a full partnership between public safety and commercial——

Mr. BOUCHER. Dr. Liopiros, very briefly, please.

Mr. LIOPIROS. The two options that will reduce the funding requirements but not eliminate them are the auctioning the spectrum for commercial use or the option that NENA proposed in terms of combining the spectrum auction and giving some of the proceeds to public safety. Why half instead of all the proceeds, I am not sure, but that would certainly contribute.

Mr. BOUCHER. Well, thank you all very much, and I have taken a large amount of time here. The chair intends to be very generous with other members in terms of their questioning time.

Let me just comment that I appreciate the thoughtfulness you have applied to this. I am not sure that any of these proposals if implemented derive the revenues that we have to have in order to build out this spectrum, particularly in rural areas where local resources are quite limited and could not supplement whatever revenue comes from whatever utilization is made of the D block, and so my thought is that at the end of the day we are going to find ourselves looking for some kind of general fund revenues in order to finance this. So I honestly don't know another avenue that we have open that can provide the assurance we have to have that we are going to get where we need to be.

My time is expired, and at this point I am pleased to recognize the gentleman from Florida, Mr. Stearns.

I guess I am not going to be recognizing Mr. Stearns. My, how you have changed. The gentleman from Illinois, Mr. Shimkus, is recognized for 5 minutes.

Mr. SHIMKUS. Thank you, Mr. Chairman, and I have two, maybe a third one if I have time, but it is going to go to the whole panel, and it is based upon the opening statement that I made.

First of all, if the commission were to re-auction the D block or if Congress decided to intervene, how should the licenses be divided, or should they? Should there be a national license or should there be a subdivision and what would that subdivision be if there were to be one? There is a lot of us who believe that a national license obviously was part of the problem. It didn't do the trick.

So let me start with Chief Bratton first and just go from your right to left, my left to right, and if you would answer that, I would appreciate it.

Chief BRATTON. Our perspective is that either one would work.

Mr. SHIMKUS. A national or any subdivision?

Chief BRATTON. That is correct.

Mr. FONTES. I think in encouraging more competitors, I think regional licenses whether it is a collection of States or breaking down the State level would probably attract more participants to the auction and enable more rural participation.

Chief MCEWEN. The Public Safety Spectrum Trust can support either option. The regional approach is probably the more practical one now, having the failed first auction.

Mr. SHIMKUS. And let me chime in because part of the question was, regions as defined how. Do we have a better way of defining regions? I mean, if you don't, that is fine, but because of your expertise if you know of one, if you share that?

Chief McEWEN. In the third further notice which is on the record that was put out last year, it did suggest a regional approach for 50-some regions. In other words, it was based on the 700 megahertz regions now plus a couple of offshore regions so there is a regional makeup that we basically supported in those comments.

Mr. SHIMKUS. Thank you.

Mr. BARBOUR. I think the wish list would be a national licensee but I think in reality it is going to be a regional approach.

Mr. BLACK. If it is a re-auction, we would support a regional approach.

Mr. HANLEY. U.S. Cellular would support a regional approach, and we agree with the 55 regional planning areas or States as a model for doing that.

Mr. LIOPIROS. I too would support a regional approach. I think it would get more commercial carriers involved in the implementation of the system.

Mr. SHIMKUS. Thank you. That is better than I would have expected as far as a consistent response, so I think that does show some movement, Mr. Chairman.

The other issue would be, and I talked it before, is two things. One is, I have always been concerned that we don't have standardization of equipment out there and so the question—I mean, I am talking about nationally now. There may be some within departments and areas. But also I raised the issue of the expiration or the statutory deadline and the funding authority of September 30, 2010, and I raise that. There is one bill, H.R. 3348, which would grant extensions to allow us to roll out. Would you be supportive of us moving rapidly to extending that ability? And Chief, if you would start and then go back down?

Chief BRATTON. Very supportive.

Mr. FONTES. Definitely I would support the standard equipment and I think all of public safety agrees that LTE is the de facto standard, and then with respect to the funding authority, I would support it.

Mr. SHIMKUS. Let me follow—the fact that they have agreed, does it mean that it is?

Mr. FONTES. No.

Mr. SHIMKUS. And so something—there probably should be some certitude based upon law or rulemaking of a standard.

Chief McEWEN. I assume you are talking about the extension of the PSIC grant? Is that what you are talking about? OK. Well, first of all, I think we are in support, public safety, of extending those grants but those grants as currently written are not intended to fund this type of an operation. They are—

Mr. SHIMKUS. I understand that, but still, as Anna knows, we work on emergency response, 911 issues and so this is our chance to continue to raise other aspects.

Chief McEWEN. Well, we would support that but I just want to make sure everybody understands that money wouldn't really bring anything to this issue.

Mr. SHIMKUS. In our opportunity to ask questions that are important to us, we take every opportunity to do that.

Chief McEWEN. Right.

Mr. BARBOUR. I definitely support it.

Mr. SHIMKUS. Thank you.

Mr. BLACK. We would defer to our public safety partners.

Mr. HANLEY. U.S. Cellular would support the extension.

Mr. LIOPIROS. I too would support that.

Mr. SHIMKUS. Thank you very much. And Mr. Chairman, with that, my time is expired.

Mr. BOUCHER. Thank you very much, Mr. Shimkus.

The gentlelady from California, Ms. Eshoo, is recognized.

Ms. ESHOO. Thank you, Mr. Chairman.

Just an observation. We were talking about spectrum and how it can be used. I can't help but think of the spectrum here from an Angelian with I think a Boston Irish accent to the other end of the spectrum, a wonderful, great and Deep South accent from North Carolina. Only in America. So we have got our own spectrum here.

I want to ask some questions about the money because that is what is going to fuel this. I know that choices need to be made and I think the chairman did an excellent job of outlining basically four ways to go, what we have in front of us. You know, I mean, there is the subleasing. In terms of money, it can come from subleasing the spectrum or the money that is taken off the top of an auction or the partnerships. Now, Chief McEwen, you mentioned that you met with all commercial players. What is the price tag on this to have a ubiquitous system? See, what I am afraid of or I am fearful of in some of these ideas is, I am worried about inner cities and rural areas. They don't really have any leverage. I don't think they have leverage, anyway. That is my own take on it. So in talking to the commercial interests, what is the total sum of money that is needed nationally where we have a ubiquitous system? You know, any time we get into the weeds on this stuff, I take myself back to 9/11, to that fateful day where there was no interoperability between police and fire. God only knows who would have survived if we had the kind of system that almost a decade later we are trying to build out. So this is very real. So what do you think, or anyone else, the price tag is for this?

Chief McEWEN. First of all, nobody, I think, knows.

Ms. ESHOO. Nobody knows?

Chief McEWEN. And so I would tell you that there have been numbers as low as \$20 billion and as high as \$40 billion, but what we have done is to basically ignore all of that, and the reason is that if we leverage as has been suggested by Mr. Black some of the existing infrastructure in the large companies, the small companies and the rural companies and then use public-private partnership to pay for the rest of the rural area, we believe that you can save a lot of money. In other words, this basically becomes achievable through that kind of a structure, and that \$20 billion or whatever it is really means nothing at the end of the day because if you use the existing infrastructure of the carriers, U.S. Cellular—there are rural carriers that have infrastructure. The National Rural Telecommunications Cooperative has tremendous infrastructure, tower

sites, all kinds of things that we could leverage upon to save money to make this an affordable project.

Ms. ESHOO. Does anyone else want to comment on it?

Mr. HANLEY. I would say just briefly the cost depends obviously on specifications of the network, which—

Ms. ESHOO. I am sorry. I didn't hear the first part.

Mr. HANLEY. The ultimate, the total cost depends on what the specifications are for the network so there is indeed a range. I think the key from a funding perspective is to make that network as efficient as possible using the efficiencies that LTE provides in a larger 20 megahertz band, leveraging as much of the operator's existing infrastructure as possible, and allowing commercial operators to get value out of it.

Ms. ESHOO. I understand that. The part that I don't want to come to, the scenario that I don't want to see in this hearing room is, we have gone off, we have designed this, we have made our choices and now we are coming back to you because there is a tremendous shortfall and therefore we don't have a ubiquitous system. We need to drill down to see how this thing is going to—what is needed to build this system. I think we have the building blocks for it. I think we are smart enough and we have the technologies to know what we want it to deliver but, you know what? Around here, price tags really do matter, and if there is going to be a shortfall for half of the \$40 billion, then we need to take that into consideration in terms of what we do. I don't want to short-circuit what we want to build because we come up short on the money, and I can't believe that we don't know that there is a range here between \$20 and \$40 billion. It is not fault or blame, I am just saying that we really need to plan this better. I don't have any time left.

Thank you, Mr. Chairman. Instructive hearing. Thank you, all of you, for being here today and to our West Coast chief, thank you for the job that you do in the City of Angels.

Mr. BOUCHER. Thank you very much, Ms. Eshoo.

The gentleman from Florida, Mr. Stearns, is recognized.

Mr. STEARNS. Thank you, Mr. Chairman. I think that is one of the key questions, how much this is going to cost. Now, I think my staff and I thought it was \$10 to \$15 billion, so when someone mentioned \$40 billion, that is quite larger than we expect.

Mr. Hanley, do you think it would cost as much as \$40 billion? I mean, the range I heard was \$10 to \$15 billion. Just quickly.

Mr. HANLEY. If it is purpose built, dedicated with no leverage of existing infrastructure and it is built to very, very, very high standard, it could be at the high end of that range.

Mr. STEARNS. Dr. Liopiros, do you think it could get by with \$10 to \$15 billion?

Mr. LIOPIROS. It is my point that some of the developments in terms of the municipalities that want to build out networks now, they are doing it with their own funds. If you project that with cost to cover the Nation, I think you come up with a lower figure than people are quoting. But it really boils down to, as Mr. Hanley mentioned before, what are the requirements for the system? What do you want it to do? And I would suggest that maybe people aren't really quite sure what they want it to do and maybe they are just

kind of saying well, let us get as much spectrum as possible to cover any future growth.

Mr. STEARNS. But auctioning off the D block might not only—well, it won't even approach getting this money, maybe get \$2 billion or \$3 billion, so the real question comes down to, the fundamental question is, where are we going to get the money to do this. Now, I think after listening to you, many of us are starting to think that perhaps the government through general revenue should provide this. I think the chairman talked about this. And so I think what we have here is, it is so important, in fact the public safety community on September 11, 1996, indicated that we need to have a broadband network for public safety so it is sort of ironic that on September 11th when they issued their report in 1996, they talked about it. So the need is out there. We have got to get moving. So if we can't agree on anything, we should agree that we have got to get the revenue from somewhere and perhaps general revenue is an area that we could look at.

So the next question is, if we get the general revenue, should we use the D block in combination with the 24 megahertz or can we put it all in the 24 megahertz? And I guess, Dr. Liopiros, why couldn't we use just the 24 megahertz spectrum, take the D block, auction it off to the broadband private sector, get the money from that? That would increase the broadband capabilities so all of us in our wireless would be enhanced and then use the 24 megahertz as the network for public safety? Is that doable?

Mr. LIOPIROS. I think that is doable over time.

Mr. STEARNS. OK. Now, within that, there is some question of whether 10 of it should be for broadband and 14 of it should be voice. Is it possible that we could use VoIP, voice over Internet, and we could use the whole 24 for broadband with voice over Internet so that the entire 24 megahertz is available? So is that technically possible? Is there a sense that that would be reliable?

Mr. LIOPIROS. Technically it is possible. VoIP will be provided by LTE and also the developments in LTE that allow them to also support the traditional circuit-switched voice applications as well. Currently, public safety is oriented towards two separate approaches, the traditional narrowband voice and over that is going to be overlaid a wideband capability, but I think over time you can actually bet on what is going to happen is, that combining the two blocks and having a one wider broadband capability to support narrowband voice applications as well as broadband capability.

Mr. STEARNS. OK. Is—

Mr. LIOPIROS. And that makes more efficient use of the total spectrum.

Mr. STEARNS. Yes. Is public safety already talking about VoIP in some way?

Mr. LIOPIROS. I know some have talked about using it. I don't know what the official position is.

Mr. STEARNS. Chief?

Chief McEWEN. Well, I mean, I think you are asking the wrong person here. I mean, we are the public safety people and he is a commercial guy. Here is the issue—

Mr. STEARNS. Well, I am looking for somebody who is an engineer.

Chief MCEWEN. I know. Well, but here is the issue. Right now——

Mr. STEARNS. Didn't you work for the Department of Defense at one time?

Mr. LIOPIROS. Yes, I did.

Mr. STEARNS. OK. So I don't know if you want to discredit him because I think——

Chief MCEWEN. I won't discredit him, but the answer is very simple. At the moment today as we sit here, there is no broadband technology on the drawing board or planned to replace mission-critical voice as public safety knows it today. That is a dangerous thing, a leap of faith for people to assume that you could just build a broadband network to take the place of mission-critical voice systems.

Mr. STEARNS. OK. I accept that. I mean, that is true. But how about this? If you take and give 14 megahertz for voice and 10 megahertz for broadband and use the 24 megahertz as a network for public safety, Chief, would that be satisfactory to you?

Chief MCEWEN. See, the problem is that the 24 megahertz, the reason it was split into half being narrowband voice for mission-critical land mobile systems is because that is critical to us today. We can't abandon that because there is no alternative. VoIP broadband is not acceptable for mission-critical systems and the technology——

Mr. STEARNS. But do you think——

Chief MCEWEN. It just isn't.

Mr. STEARNS. OK. All right. Well, I will just conclude, Mr. Chairman, just by saying this. Is it possible, Dr. Hanley, that with the 24 megahertz between voice 14 and broadband 10 would be satisfactory? Just yes or no, either one of you.

Mr. FONTES. Yes.

Mr. STEARNS. Mr. Hanley.

Mr. HANLEY. Yes.

Mr. STUPAK. [Presiding] We are going to stand in recess. We have about 3 minutes left to vote. Congresswoman Harman is going to come right back and she should have voted. She should be back here any second. We will keep this hearing going. Members are going to vote and run right back, so we will just ask you to hold tight. We will be in recess until Congresswoman Harman or someone on this side can take the chair.

[Recess.]

Ms. HARMAN. [Presiding] Reconvene. I would like the supreme irony that I, a former member of this subcommittee, came back today because I feel so strongly about this subject and now I am chairing the subcommittee. Go figure. At any rate, thank you all for coming and I want to reiterate the message that you have already heard and that you agree with, which is we need to get on with this. Does anyone disagree with that? No. Yesterday, at the request of Chairman Waxman, I introduced H.R. 3633, which is to extend the PSIC grant program for 1 year and then after that to extend it on a case-by-case basis. That is because as all of you know, there were some delays in DHS's action and we think that that unfairly burdens you, those of you who are in the law enforcement business, at a time when State and local budgets are flat to

negative. So hopefully it will pass the Senate. Senators Rockefeller and Hutchinson have introduced it there. That would be good news since they are the chairman and ranking member of the Senate Commerce Committee and with Congressman Waxman's support I would think we would be in good shape here too. So relief is coming.

Having said that, however, as some of you commented, that is not the same as this. Having grants for equipment at the local level is not the same thing as building out a national interoperable network, and I want to ask you a couple of questions about that, but first I do want to say to my own chief that we will miss you. Your record is extraordinary. The one thing you didn't get done was this project, which I assigned you some years ago, and you failed me, but aside from that, Los Angeles residents including me are very, very grateful for your service and we wish you well, and as my good friend, you and I know will stay in touch.

So my question about this is the following. I heard the discussion about regional build-out. I also heard the discussion about do we use public money since the auction has not succeeded as of yet or not. I don't know what the best answer is there but my bottom line is, let us just do it the best way we can as quickly as we can. But my question is this. I have been concerned that we might be pedaling backwards, and I want to explain that, that we might be, at least some parts of the country, might be building out local interoperable networks but those networks are not interoperable with other networks. So in other words, sort of the way I see it, we are going operable around the country but we are making it harder to go interoperable because those networks don't converge in the way they would need to, and I see Chief McEwen nodding so I am going to ask him first but then ask for some other comments.

Chief MCEWEN. Well, it is a legitimate concern, and we have been addressing that concern. The National Public Safety Telecommunications Council formed a broadband taskforce to address that issue and they have just released their report to us. We are in the process of reviewing that. And that is an attempt to make sure that these early build-outs in San Francisco, New York City, Boston, wherever are going to be fully interoperable with any of the rest of the network as it is built out. We are absolutely convinced that we have the ability to do that and that we have the necessary tools to move that forward and not have that a problem.

Ms. HARMAN. Is that a promise?

Chief MCEWEN. That is a promise, because if it doesn't—I represent both the small guys in the police world and the big guys, and if I don't perform for both, I am basically out of a job.

Ms. HARMAN. And you represent the rural guys and the urban guys?

Chief MCEWEN. I do.

Ms. HARMAN. Because that matters to me too. I mean, as all of you know, I have spent a lot of years focused on what could happen here and it could happen in our smallest communities as well as our largest, and since the attacks in the future will be asymmetric, I mean, that is the trade craft of our enemy, it very easily could happen in small areas that at the moment aren't adequately networked.

Do others of you have comments? Chief Bratton, do you want to defend yourself against my comments?

Chief BRATTON. That is my understanding, that this will be addressed. If I may, as a follow-on to a question that was going on just before the break about the cost of this and the wide variety of estimates, to give a bit of perspective on it, the system that we have been designing over the last 4 years in Los Angeles involving Los Angeles County, 45 cities, we estimate the system for that 10-million-person area would be about a \$700 million project just for that area to get interoperability the way we are designing it.

Ms. HARMAN. Yes, sir?

Mr. FONTES. I do believe that interoperability is critically important and I certainly support that. I am thinking of broadband context interoperability and particularly the work that has been done by the council. It has been very helpful in working on roaming and interoperability. I too would like to add one additional point to the funding issue, and that is simply to get a one-time shot of money does very little to enable public safety to plan and build for the future and so there is essentially a need, and Chairman Boucher summarized that there is a need for in this case perhaps general Treasury monies in some way, shape or form to provide that capability of planning so that you will know from one year to the next what you need and what you have to spend. It is basically how we run our households, and we know public safety is essentially the same.

Ms. HARMAN. If I could just insert there, and we do have a little more time because we don't have any other members here, so as the new chair of this subcommittee, I am planning to take a little more time. The stability of funding and the amount of funding are clearly relevant, and as Chief Bratton well knows, \$700 million is not chump change. That is a lot of money. I think as important as the funding and sustainability questions there are, are the questions, and they may have been asked in my absence, about whether our build-out will be state of the art and future-proof, and so let me just ask our private sector partners to put that back in the table too in the context of sustainable funding and amount of funding. I mean, what are your thoughts about this?

Mr. BLACK. Well, from AT&T's perspective, you know, the choice of LTE is an excellent choice because it is the state of the art and it is also evolving. That is why they call it long-term evolution. The fact that public safety has chosen it means that they are going to be able to ride the coattails of an industry that already has proved to be very, very strong in terms of technological advancement, and to that end, AT&T participated in the same broadband taskforce that Chief McEwen mentioned, and to your point about a sense of urgency, we have actually been very bullish about this and once there was consensus among the public safety community about going to LTE, we have become proactive in working with our device vendors of adding the public safety spectrum to the commercial spectrum to try to drive down the cost and we think that is the kind of partnership that needs to happen.

Ms. HARMAN. Any other comments?

Mr. HANLEY. Yes, I would just echo the comment about LTE. I think that is very important to achieving sustainability, but we

have to recognize that the network will evolve. I think that folks that build networks will have to take on the responsibility for remaining interoperable, even if that requires investments in the future. I think also the sustainability of the overall ecosystem of devices will be enhanced by having commercial users be part of that process. That is another reason for shared use.

Ms. HARMAN. I strongly agree with that. I represent a part of the country that makes most of our intelligence satellites, and over the years we have been able to evolve better and better capability because a lot of those satellite makers also make commercial satellites and the dual-use nature of those buses and even some of the stuff that is put on them has enabled it to evolve better. So I am strongly in favor of a public-private partnership and of an evolving architecture that will help law enforcement see the future and grandparents in Congress see the future in ways that we might not otherwise. So that makes a lot of sense.

Let me just finally ask you as a very impatient person who has only spent about 8 years pushing on this, when do you really think we will get there from here?

Chief McEWEN. Well, we are never going to get there until you help us get there. I can guarantee you that. So it is a matter of making decisions. The decision we are asking you to make right now is to pass legislation to take the D block off the auction block. Either that has to happen or there has to be an auction, and the problem is that at the moment we don't know when either of those may happen. So, I mean, it isn't going to go forward until one of those happens.

Ms. HARMAN. Yes?

Mr. FONTES. I would reverse the priority. I would think that the most important thing if I were in your shoes as chairman, I think the most important thing is to ensure that there is funding available on a recurring basis. With that funding available, whether it is all owned and controlled by public safety environment or even if it is a shared partnership with the private world, that funding is essential to—you made a reference to the buses and how they can plan on the buses on these satellites. That is exactly what is going to happen in the broadband world. You have to be able to pay for and plan, plan and pay for the applications that will benefit all of us in public safety. So funding on a recurring basis is essential.

Ms. HARMAN. Well, thank you very much. Let me just conclude my hearing with the observation that you are all right and that progress in individual counties and cities, especially huge ones like L.A. County and City, is critical. Sustained funding is critical. Congress acting is critical. The FCC acting is critical. And industry staying at the cutting edge is critical so I think this is our most urgent project. Nine eleven happened to us, or 9/11 exposed two big fissures in our capability. One was, we had a lot of stovepipe intelligence agencies that couldn't talk to each other or even talk to themselves in the case of one agency, and the other was that we had a completely inadequate interoperable communications system, and the combination of those two things resulted in catastrophic damage and loss of life in America and it is something we will never forget. So we have done substantial work to fix the lack of information sharing in our government. We have done intelligence

reform. We have done all kinds of things that I think have put us in a much better place with respect to that. But we have far too little to build out a truly national interoperable communications network, and you folks are all bright and you know what is needed and I think most of the folks on this committee on a bipartisan basis are committed to make it happen. Now we just have to do it. And I thank you for staying during the voting period, and I want to express my gratitude to all on this committee for naming me the new chair of the subcommittee.

The subcommittee hearing is adjourned.

[Whereupon, at 10:15 a.m., the subcommittee was adjourned.]

[Material submitted for inclusion in the record follows:]

Statement of
Representative John D. Dingell
Committee on Energy and Commerce
Subcommittee on Communications, Technology, and the Internet
Hearing on "A National Interoperable Broadband Network for Public Safety: Recent
Developments"

September 24, 2009

I commend you, Mr. Chairman, for holding today's important hearing. I note with some degree of irritation that the auction of D Block within the 700 Megahertz band mandated under the Digital Television Transition and Public Safety Act of 2005 has yet to be completed. Thanks in large part to what I view as a flawed auction structure adopted by the Federal Communications Commission (FCC) during the previous Administration, we must again contemplate how best to facilitate the auction of this spectrum, now nearly four years since passage of the authorizing legislation.

My frustration at the lack of progress in this area aside, I believe today's hearing should serve to establish a practicable framework by which to achieve a satisfactory and expedient conclusion of the D Block auction. In my view, the auction's structure should include a clear definition of terms of use for the spectrum to be purchased prior to the auction. Otherwise, potential bidders will have little incentive to participate in the auction. Moreover, the auction's consummation should include a viable source of funding by which to build out infrastructure for public safety broadband. This in mind, I would welcome a frank discussion by our witnesses concerning their estimates of what a national public safety broadband infrastructure buildout would cost and how best to pay for it. On a related note, I believe this buildout should proceed with equal attention given to urban and rural areas. I understand there are 12 pending requests before the Commission for waivers, so that individual cities may proceed with public safety broadband infrastructure construction. While such initiative is commendable, I believe it highlights the need to ensure that rural areas are not left behind in this process. Finally, I would highlight the need to consider long-term sources of funding for maintaining the public safety broadband infrastructure brought about by this auction. Our witnesses' views on this matter would be most appreciated.

I thank you for your courtesy, Mr. Chairman, and yield back the balance of my time.



APCO International

Association of Public-Safety Communications Officials-International, Inc.

September 23, 2009

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The Honorable Rick Boucher

Chairman

Subcommittee on Communications, Technology, and the Internet
House Energy and Commerce Committee

U.S. House of Representatives
2125 Rayburn House Office Building
Washington, D.C. 20515

Dear Chairman Boucher:

On behalf of the 16,000 members of the Association of Public-Safety Communications Officials (APCO) International, I applaud you and Ranking Member Stearns for holding this hearing on "**A National Interoperable Public Safety Broadband Network: Recent Developments.**" Please include this letter and the following written statement as part of the record. As you know, APCO, the only member led organization that focuses on the design and deployment of such networks, has worked very closely with our partners on the Public Safety Spectrum Trust (PSST). But you must also appreciate that our members provide a unique perspective that cuts across all of public safety and all levels of government.

For more than ten years, APCO International has worked closely with Congress and the Federal Communications Commission (FCC) to make available critical radio spectrum for public safety agencies' use, which would vastly improve our collective and individual abilities to protect and serve our nation's citizens and communities.

The policy framework set forth in the next few months will have a tremendous impact on the way our public safety professionals and first responders are able to communicate for decades to come. Today, we are just beginning to see new systems come online and new technologies developed that hold the promise of significantly improving the communications capabilities of our country's emergency personnel across all levels of government. Still, it is only a promise at this point.

Therefore, we must proceed cautiously and expeditiously to resolve the many outstanding issues concerning development of a national mobile public safety network. APCO International's written testimony discusses some of the financial and operational issues that must be addressed if we are to successfully deploy a national interoperable public safety broadband network that meets the needs of our first responders.

For your information, APCO International was established in 1935 and today is the nation's largest public safety communications organization, representing approximately 16,000 members worldwide who build, supply, manage and operate communications systems and facilities for police, fire, emergency medical services and other state and local government public safety agencies. APCO International also serves the needs of more than 100,000 professionals in the public safety communications industry by providing training, frequency coordination, engineering, licensing, advocacy, and networking opportunities. APCO International's membership is comprised of public safety communications professionals from remote, rural, suburban and urban communications centers, in addition to state and federal agencies.

As an American National Standards Institute (ANSI)-Accredited Standards Developer (ASD), APCO International is dedicated to ensuring public safety communications leads the development of standards that affect our industry. APCO International's standards development activities have a broad scope, ranging from actual development of standards to representation of public safety communications in other standards development efforts.

In 2002, APCO International also established the Public Safety Foundation of America (PSFA), a 501(c)(3) charitable organization to engender cooperation among public and private groups to provide financial and technical support to the public safety communications community. Under the PSFA's original mission, five rounds of grants were completed, which included the delivery of more than \$13 million to over 200 agencies in 40 states. Most recently, the PSFA granted more than \$500,000 to support the Public Safety Broadband Licensee (PSBL) to continue its operations.

For more than 75 years, APCO International has been the leading consensus organization that brings together all local and state law enforcement, fire, emergency medical and emergency management agencies and associations to develop policies that will best improve our nation's emergency communications systems. APCO is also the trusted voice that state and local governments and their associations look to to provide insight and expertise on public safety technology issues.

In May of this year, APCO International hosted a meeting among the International Association of Chiefs of Police (IACP), International Association of Fire Chiefs (IAFC), Major Cities Chiefs Association (MCC), Major County Sheriffs' Association (MCSA), Metro Fire Chiefs (MFC), National Emergency Management Association (NEMA) and the National Sheriffs Association (NSA) to further address matters related to the development of a nationwide interoperable public safety broadband network. This group continues its joint deliberations on a consensus-based approach to license and manage spectrum, and to create a nationwide public safety broadband wireless network that addresses the needs of rural, suburban and urban areas.

On August 19, as a part of the APCO International 75th Anniversary Conference and Exposition which brought together over 5,000 public safety communications practitioners, APCO hosted a Town Hall Meeting on the Federal Communications Commission (FCC) Public Safety and Homeland Security Bureau (PSHSB) Notice Seeking Comment on Petitions for Waivers to Deploy 700-MHz Public Safety Broadband Networks. Representatives of all the petitioners filing waivers were in attendance at the conference and were invited to participate in this discussion. This Town Hall meeting had over 100 participants representing not only those who had filed waivers but also representatives of many of the public safety associations.

APCO International's leadership has called on all its members, colleagues and the industry to fully engage with APCO International, Congress, the FCC and others to aggressively develop standards and build consensus to ensure the long-term success of our nation's effort to realize a national public safety broadband network within the 700-MHz spectrum.

The Promise of a New Era in Emergency Communications

For APCO International's members, building out a public safety broadband network represents the most important technological and operational change in emergency communications for more than three quarters of a century. Nearly a century ago, police officers had to use call boxes to communicate with their police departments. Over 75 years ago, mobile radio communications drastically changed the way police officers communicated and APCO International's members were at the forefront of this change. With the invention of the mobile radio, a police officer on the street could communicate directly with a police department without the need to go to a call box. It revolutionized the way we protect the public, serve to community and drastically improved public safety.

Today, mobile broadband communications holds the promise to generate a similar leap forward, but we need to make some very hard decisions. Decisions that could either thwart this new era of communications or foster a new technological shift that improves public safety communications well into the next century. We have a momentous opportunity to shape the future of public safety, but if we make a mistake, if the FCC or Congress make a mistake, then ultimately our communities, our citizens and our children will pay for it.

To fully appreciate public safety's broadband needs, we must answer three overarching questions:

1. Do first responders and emergency communications personnel really need access to high-speed mobile broadband networks? If so, why?
2. How long will it take to deploy such networks across the country, especially in remote, rural and suburban areas?
3. How much will it cost and who will pay for it?

We must also clearly define public safety broadband.

Defining Public Safety Broadband

As the FCC continues to develop the National Broadband Plan, APCO urges that it must draw a clear distinction between what is meant by broadband for public safety, and what is meant by broadband for consumer-based services. APCO International is very concerned that public safety broadband is not generically categorized within the same definition as consumer based broadband services. We are challenged daily on how to define public safety broadband. Is public safety broadband connecting public safety agencies, such as police and fire departments, to fiber and copper networks? Is public safety broadband meant to connect incident commanders to wireless mesh networks at the site of a large-scale incident? Is public safety broadband meant to connect first responders and emergency personnel to mobile high-speed voice, data and video networks where ever and whenever?

The simple answer is *all of the above*. But, unfortunately, it is more complicated than that.

Many public safety agencies around the country have access-dedicated high-speed broadband copper and fiber networks to communicate data. Much of this infrastructure has been built by local governments, at tax-payer expense, because local telephony carriers could not provide it. These networks are a critical part of emergency communications today, but we don't believe this is an area of most urgent need for public safety broadband communications.

Public safety agencies are also deploying high-speed broadband networks in the 4-GHz spectrum band. These systems are critical for incident management using WiFi and mesh networks. They provide incident commanders with the ability to easily set up high-speed broadband networks and communicate with emergency communications centers. There is a lot more that has to be done to increase the number of deployments all across the country and we are making great strides, but at most these systems will likely be used as situational hot spots.

To truly understand the broadband need of public safety we need to emphasize the key word *mobile*, not *hot spot*, not *fiber* and not *cable*. So, what do we mean by *mobile*?

Mobile means that while traveling at 55 mph on the highway you are able to continuously access a broadband network to upload and download data. It means that if you are pursuing a suspect at 80 mph and have an in-car video camera you can upload the live video to the emergency communications center. It means that while you are responding to a fire you can download the blueprints to the burning building before you get to the scene. It means transmitting medical data to emergency medical personnel that are transporting a trauma patient and receiving a patient's vital statistics at the hospital before the ambulance ever arrives. Mobile broadband communications has so much more to offer than copper, fiber, and hot spots and that is why it is critical that any definition for public safety broadband must emphasize mobility.

The State and Local Economic Challenge

The build out of any national public safety broadband network will require a considerable paradigm shift in how our nation's local, state and federal governments pay for and manage emergency communications networks. The current funding paradigm, which has existed for more than 80 years, has resulted in purchasing proprietary technologies that foster stand-alone networks and communications systems that lack interoperability. During the last 80 years, local, state and the federal governments have combined to invest billions of dollars to build out the current public safety land mobile network. A recent GAO report stated that "FEMA alone, awarded over \$3.85 billion in federal funding to improve interoperable emergency communications to state and local agencies from 2004 to 2007."¹ It is important that Congress understands that federal funding represents only a small portion of the actual cost incurred by state and local governments working to upgrade their current land mobile radio communications systems. While we have been able to overcome many of the technological challenges in meeting the interoperability mandate, there is still much more work that needs to be done on the operational, governance and policy levels.

The recent GAO report dated June 2009 said, "continuity of communications, capacity, and interoperability are primary areas of vulnerability in first responder emergency communications in communities across the country." While thousands of emergency communications personnel are working to remedy this, we need the support of Congress to ensure that appropriate federal resources such as spectrum and funding are not squandered needlessly.

Today, local and state governments are continuing to spend billions of dollars to upgrade their systems, train staff and establish new governance models that promote interoperability. Public safety agencies are also burdened with purchasing new radio equipment to meet the FCC's impending narrowbanding mandate by 2013. In the current environment, Congress no doubt understands that most local and state governments lack the financial resources necessary to deploy new broadband technologies.

¹ United States Government Accountability Office. (June 2009). *EMERGENCY COMMUNICATIONS: Vulnerabilities Remain and Limited Collaboration and Monitoring Hamper Federal Efforts*.

As Congress is well aware, local and state governments are struggling to come up with the money needed to maintain current emergency communications operations, let alone upgrade or purchase new systems. APCO International's members are working tirelessly to justify every expenditure and every new program they are looking to implement in a given budget year. Training budgets are being slashed and we are continuing to struggle with meeting staffing shortages. Our budget proposals are looked over relentlessly and decisions are made based on the priorities established by state and local governments. While public safety remains the highest priority for our local governments, our city managers, councilmen, mayors, state legislatures and governors have to make very difficult decisions to cut their overall budgets and expenditures. It is an unfortunate fact that many of the small and mid-size communities around the country will not have the money needed to fund new projects, such as deploying broadband networks.

A recent survey of city finance officers conducted by the National League of Cities stated that "67% of the cities instituted a hiring freeze and/or are laying off staff, 62% are delaying or cancelling capital infrastructure projects, and one in three finance officers reported that their city is making cuts in services other than public safety."

We must be able to leverage one of our nation's most valuable resources - spectrum - to help our local and state governments improve their emergency communications operations. Instead of auctioning the spectrum to the highest bidder, Congress should consider unique and alternative ways to promote a partnership between public safety and the private enterprise.

Allocating Additional Spectrum to Public Safety

APCO International urges Congress to pass legislation that will reallocate the D Block of the 700-MHz band spectrum for public safety broadband communications and require that such spectrum be assigned to the national public safety broadband licensee and combined with the current public safety broadband spectrum in the band.

If Congress does not allocate the D Block to public safety, our nation's local and state governments will not be able to fully leverage the value of the spectrum to negotiate with commercial providers to build out robust, reliable and secure broadband networks in the 700-MHz band. If this is the case, then local and state governments will be left with the burden of funding the build out in the 10 MHz of spectrum that is currently allocated to public safety. In short, local and state governments will have to spend billions of public tax dollars to build out the networks. As previously stated, we are already spending billions on improving interoperable communications and meeting the narrowbanding mandate.

Unfortunately we are working with two finite resources - spectrum and money - and both are desperately needed to build out a national network. While large cities and urban areas might have enough money to build out broadband networks, they lack sufficient spectrum to accommodate all public safety users. Whereas, small and rural areas might be able to use less spectrum to build out the network, they lack the money to do so. This is not an *and/or* option. Public safety must be able to leverage the use of the D-Block spectrum to ensure there is adequate private investment. Without the private investment, what might take 5 to 10 years to build will likely take 15 to 20 years, if not more.

Can state and local governments build out mobile public safety broadband networks in 10 MHz of spectrum that is currently available to public safety? Unfortunately, the answer is *we don't know*. Probably most data applications today can be done on the 10 MHz. However, if public safety tries to also use the network

for real-time two-way voice and video applications then the answer to the question again becomes more complicated.

We don't know when the next large-scale disaster is going to occur and what resources will be required to address it. The 10 MHz might be enough for some applications today, but it will not be enough for the voice and video applications of tomorrow. We have an opportunity to build a robust system that can accommodate public safety's needs for the next 50 to 80 years.

Commercial Only Networks

Most public safety agencies are not going to depend solely on commercial networks for their mission-critical operations. Any belief that allocating public safety spectrum to commercial-only services, in which public safety is just a customer, is, at the very least, short sighted and misrepresentative of the public safety community at large. While there are some situations in which there are potential economic benefits to commercial systems and there may be cost savings, the cost savings are secondary to ensuring that these systems are completely reliable, redundant and secure. Thus far, commercial providers have been very reluctant to spend the extra money needed to build out a broadband network that meets public safety's needs. Further, in some cases agencies may not have funds to pay reoccurring charges but may have funds for capital projects allowing them to build their own networks, thus avoiding the high per unit monthly payments to commercial carriers.

Accordingly, APCO International strongly opposes the auctioning of the D-block spectrum for commercial purposes only. There have been some suggestions that the auction proceeds could be used to offset the cost of building out a national public safety network. Again, this perspective is very short sighted. Even if the auction were to generate another \$1 to \$5 billion dollars, it would not be enough to pay for a mobile public safety broadband network that will easily cost in excess of \$20 billion. Who will pay for the additional cost? If local and state governments are going to build the networks, it will most likely be the individual taxpayers.

Auctioning the spectrum for commercial purposes might provide some competition to current broadband providers, but it will not reduce the cost to the consumers for broadband service and, ultimately, the tax payer will be left to subsidize the national mobile public safety broadband network.

It goes without saying that requiring public safety agencies to subscribe to commercial networks for broadband services is very problematic for the thousands of jurisdictions that lack funds. While a monthly per-user subscriber fee might be seen as an insignificant cost to some, when it is multiplied by the hundreds and thousands of potential users, the cost justifications are insurmountable for many small- and medium-size communities. The potential subscriber base for the network can easily exceed 950,000 first responder and public safety users nationwide. For argument's sake, if we assumed the subscription rate for each subscriber was around \$46, for an agency that might have 150 subscribers it would cost \$6,900 per month and \$82,800 annually. When all is said and done, if commercial systems are built to public safety specifications, the actual subscriber cost increases exponentially. Again, many small- and medium-size communities around the country will have a very difficult time in justifying the subscription expense to their local and state governments. Such subscriptions will also be the first expenses to be cut by local and state governments to balance the budget, especially during times of economic downturn, such as the one we are experiencing now.

The viability of a public-private partnership must be premised on making sure the public sector has an equal standing in the negotiations with private commercial providers. If the FCC auctions the D Block for

commercial purposes only, it will greatly weaken the negotiating power of the public sector to build out a national broadband network.

Need to Move Forward

APCO International continues to believe that a public-private partnership is critical to deploying mobile wireless broadband networks around the country. However, we recognize that there are some state and local governments around the country that have the resources to build, maintain and manage their own networks. APCO International's members are in support of building out these regional systems, as long as these systems meet established national guidelines and standards.

The FCC should grant waivers - or other relief - to allow local, state and regional broadband systems, where funding is available, to be deployed by public safety entities in the 700-MHz band pursuant to authority from the national public safety broadband licensee. Operators of such systems should also be able to enter into compatible public-private partnerships while retaining interoperability with the national network and its users. A portion of the revenue derived from such partnerships should revert to the national broadband licensee to help support deployment across the nation. APCO International also supports rules and procedures to ensure that all users of the broadband network will be able to roam across local, state and regional systems that are part of the network, subject to appropriate priority access provisions.

Conclusion

Today, broadband systems are seen as secondary data networks to support mission-critical operations. While voice and data communications are at a point of convergence for commercial systems, public safety agencies are years, if not decades, away from relying on a single network that will be able to support mission-critical voice communications, as well as data and video services.

That being said, there are many communities that, if left to their own devices, will begin to deploy their own networks. If it is not done properly, we will once again be facing a stovepipe system that lacks interoperability. We must learn the lessons of history and ensure that we don't repeat past mistakes!

APCO International will continue to take the lead in working with commercial industry, local and state governments and public safety organizations to develop the necessary governing framework to build out a national network that provides an unprecedented partnership between public and private enterprises. We look forward to working with Congress and the FCC to make sure our local and state governments have the resources they need, including spectrum and funding, to speed up the deployment of mobile public safety broadband networks around the country.

We look forward to continuing to work with the committee to address these concerns, and toward aggressively ushering in a new era in emergency communications.

Sincerely,



Richard Mirgon
President



September 23, 2009

Chairman Rick Boucher
Subcommittee on Communications, Technology and the Internet
Committee on Energy and Commerce
U.S. House of Representatives
2187 Rayburn House Office Building
Washington, D.C. 20515

Ranking Member Cliff Stearns
Subcommittee on Communications, Technology and the Internet
Committee on Energy and Commerce
U.S. House of Representatives
2370 Rayburn House Office Building
Washington, D.C. 20515

RE: A National Interoperable Broadband Network For Public Safety: Recent Developments

Dear Chairman Boucher and Ranking Member Stearns,

On behalf of T-Mobile USA, Inc. ("T-Mobile"), I welcome the opportunity to address the best uses of the 758-763/788-793 MHz band, commonly referred to as the 700 MHz D Block. T-Mobile, together with Metro PCS, Leap Wireless, and the Rural Telecommunications Group (the "Competitive Commercial Carriers"), filed a letter last June with the Federal Communications Commission ("FCC") proposing an approach for the 700 MHz D Block. That approach, in the view of T-Mobile, best serves consumers, commercial carriers, and the public safety community alike by auctioning the D Block solely for commercial purposes with the auction proceeds directed to fund the build out and maintenance of a nationwide, interoperable public safety broadband network.

T-Mobile (together with its predecessor companies) has operated in the United States for more than twelve years and has steadily grown its service offerings to become the fourth largest national wireless competitors in the United States. T-Mobile now provides service to more than 32.8 million wireless subscribers, with a wireless network reaching more than 268 million people, excluding roaming coverage. T-Mobile also provides Wi-Fi access at more than 10,000 public locations throughout the country. T-Mobile's mobile network is based upon the Global System for Mobile Communications ("GSM") platform and also utilizes General Packet Radio Service ("GPRS"), Enhanced Data Rates for GSM Evolution ("EDGE") technologies, and third generation ("3G") Universal Mobile Telecommunications System ("UMTS") technologies, including High Speed Packet Access ("HSPA") and most recently High Speed Packet Access Plus ("HSPA+").

T-Mobile has distinguished itself in the wireless marketplace by dedicating itself to offering premier products and services at competitive prices with excellent and responsive customer service. In fact, last week T-Mobile received the highest ranking among national wireless carriers in the J.D. Power and Associates 2009 Wireless Retail Sales Satisfaction StudySM – Volume 2. Similarly, T-Mobile has received the highest ranking in nine of the last ten

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401 9th Street NW, Suite 550
Washington, DC 20004

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Customer Care Performance Studies conducted by J.D. Power and Associates. These awards reflect the company's continued high standard of customer care and efforts to satisfy customers' needs and expectations.

*Access To Commercial Spectrum Drives
Competition And Enhances Consumer Welfare*

T-Mobile commends the Congress and the FCC for promoting competition and avoiding overly prescriptive regulation of the wireless industry. As a result, consumers in the United States have enjoyed robust, market-driven competition among the larger nationwide carriers and many regional and local carriers. Continuously evolving technologies and services have become a hallmark of this dynamic industry and have greatly benefited consumers. For example, more efficient 3G technologies and applications, which provide a variety of multimedia services, are already being widely deployed. Moreover, 3.5G technologies such as HSPA and HSPA+ and 4G technologies such as LTE and WiMAX will lead to even more efficient spectrum capabilities and support a wider range of advanced wireless broadband services and applications.

A carrier's ability to compete successfully in the wireless industry is linked directly to its ability to provide new and innovative services and equipment. Competition, in turn, ensures continued downward pressure on prices and upward pressure on further innovation. Meeting consumers' seemingly insatiable demands for new advanced wireless services, including wireless broadband, however, can be achieved only if sufficient commercial spectrum is available to provide these services. In fact, widespread availability of competitive wireless broadband services demands that carriers have access to substantial additional commercial spectrum. T-Mobile has urged the government to make at least an additional 200 MHz of spectrum below 3.5 GHz available for commercial broadband services within five years in order to meet growing consumer demand.

As the Congress recognized when it enacted the American Recovery and Reinvestment Act of 2009, ubiquitous deployment of broadband services is key to economic development and recovery. Wireless technologies often provide more economic and efficient means of introducing broadband services to underserved and unserved areas. In contrast, the inability to deploy competitive, and thus affordable, wireless broadband services in many areas will deprive consumers of unfettered access to jobs, health care, education, public services and resources, and other opportunities. Thus, it is critical to American consumers that service providers gain access to sufficient commercial spectrum to provide competitive wireless broadband services.

Furthermore, in only two decades members of the U.S. wireless industry already have invested hundreds of billions of dollars to construct facilities, improve the robustness of networks, increase spectrum efficiency, and develop new services and technologies, and will continue to do so going forward. The wireless industry, which has a proven track record, is a major employer and a key driver of the U.S. economy. History demonstrates that allocating additional spectrum for commercial use will have a cascading effect of, among other things, attracting investment opportunities, injecting funding into the economy, and creating new jobs.

*The 700 MHz D Block Includes Prime Spectrum For
Competitive Commercial Advanced Wireless Broadband Services*

A substantial disparity has developed between the spectrum holdings of the two largest U.S. wireless carriers and the more limited spectrum resources of all of their competitors.

Leveraging their tremendous size and resources, in 2008 AT&T and Verizon Wireless dominated Auction No. 73, obtaining prime 700 MHz licenses for a total of \$16 billion, or 84 percent of the total auction revenues. Verizon Wireless secured the six largest 22 MHz C Block licenses that cover the continental U.S. and Hawaii. AT&T secured nearly a third of the 12 MHz B Block licenses, providing valuable 700 MHz coverage in most, if not all, major markets in the United States.

The need for commercial spectrum capacity will only continue to grow as consumers increase their use of wireless broadband services. Indeed, many active bidders in the 700 MHz auction came away empty handed or with less spectrum than desired, and indicated their strong interest in additional broadband spectrum. The 700 D Block includes paired spectrum that is ideal for 4G and other advanced wireless broadband services. Thus, auctioning the 700 MHz D Block for solely commercial purposes would help level the spectral playing field and enhance the opportunities for the provision of competitive broadband services. Allocating additional commercial spectrum also will help the United States better compete in the global marketplace, where other countries are taking bold steps to provide operators with access to additional spectrum for the deployment of wireless broadband services. Given the dramatic growth in commercial broadband services, and the substantial unsatisfied demand for paired broadband spectrum, Congress should be increasing – not decreasing – the amount of spectrum devoted to commercial broadband uses.

Chairman Boucher and Ranking Member Sterns
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*Consumers Are Best Served By Auctioning The D Block
And Allocating The Proceeds To The Public Safety Community*

The prompt auctioning of the 700 MHz D Block for commercial purposes would benefit consumers and public safety interests by facilitating competition in the wireless market and providing a revenue source for public safety. T-Mobile fully supports the public safety community's efforts to build state of the art, interoperable, broadband networks throughout the nation. In ideal circumstances, unlimited amounts of both spectrum and funding would be available now to meet the demands of all commercial carriers and all public safety agencies; but that ideal world is not the real world. Instead, lawmakers must focus on the best solution that considers existing conditions and future opportunities and challenges. We realize that there are numerous proposals before the Congress and the FCC for handling the D Block spectrum. T-Mobile firmly believes that the approach the Competitive Commercial Carriers have proposed is the one that best advances the public interest. However, we also note that the National Emergency Number Association ("NENA") has put forth a promising proposition, which addresses both spectrum use and funding issues, that is worth consideration by lawmakers.

By the FCC's own account, nearly 100 MHz of spectrum has been allocated for public safety use across multiple spectrum bands. In fact, 24 MHz of the 700 MHz spectrum alone has been allocated for public safety use, 10 MHz of which has been designated for broadband services. A 10 MHz block of paired spectrum is sufficient to support a public safety broadband network at this time, particularly if the network takes advantage of new, more efficient technologies. In fact, the record shows in the FCC's D Block proceeding that the majority of the public safety community has embraced 4G LTE technology, stating that they support transitioning to LTE technology or deploying LTE (to the extent it is available). More than ten cities and/or states, including New York City; New York State; New Jersey; New Mexico; Washington, DC; Boston, MA; Charlotte, NC; San Antonio, TX; Chesapeake, VA; and San Francisco, Oakland and Jan Jose, CA, have sought FCC approval to begin constructing broadband networks on the existing 10 MHz of public safety spectrum in the 700 MHz band. In addition, as services and technologies advance, it is possible that over time some or all of the narrowband 14 MHz of the 700 MHz public safety spectrum could be transitioned to broadband services, providing a larger swath of 700 MHz broadband spectrum for public safety use. The industry also will continue to make advances on broadband technologies that will improve spectrum efficiency, which will benefit public safety and commercial entities alike.

Parties to the FCC's D Block proceeding widely acknowledge that the goals of building and maintaining any public safety broadband network will not be realized unless funding can be found to support those efforts. This immutable fact remains true regardless of whether public safety has access to the 700 MHz D Block. Given the current economic crisis and severe resource constraints facing most local and state governments, public safety agencies face even more acute funding challenges. Accordingly, the gating issue to the construction of a nationwide public safety broadband network is cost. Without financial support, no nationwide interoperable broadband public safety network will be possible.

Identifying a dedicated source of funds to help build and maintain a public safety broadband network would be a major step forward. Congress should strongly consider legislation that would enable the FCC to auction the 700 MHz D Block for purely commercial use and funnel the auction proceeds to the public safety community for the construction and maintenance of a public safety broadband network. While it is difficult to predict the exact revenues from any future auction, using the winning bids from the 700 MHz auction in 2008 as a starting point, the estimated proceeds from an auction of the D Block could range from

Chairman Boucher and Ranking Member Stens
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between \$2 and \$9 billion, depending on various factors like the band plan, licensing rules, and the condition of the economy. Although the auction proceeds alone would not be sufficient to fully fund and maintain a nationwide public safety broadband network, they would provide a valuable beginning and make the remaining funding challenges more manageable.

Conclusion

Thank you for the opportunity to address the competitive and consumer benefits presented by the 700 MHz D Block. Auctioning the D Block for solely commercial use would facilitate competition in the wireless marketplace while also creating the opportunity to provide the public safety community with a much needed infusion of funds.

Very truly yours,

A handwritten signature in black ink that reads "Tom Sugrue". The signature is written in a cursive, slightly slanted style.

Thomas J. Sugrue
Vice President, Government Affairs

STATEMENT OF
CHIEF PAUL DUQUETTE, NEWPORT, VT POLICE
SUBCOMMITTEE ON COMMUNICATIONS, TECHNOLOGY, AND THE
INTERNET
ENERGY AND COMMERCE COMMITTEE

"A National Interoperable Broadband Network for Public Safety: Recent Developments"

Thursday, September 24, 2009

2123 Rayburn HOB

10:00 a.m.

The State of Vermont interoperable communications board, VCOMM, supports the continuing effort to achieve a broadband network for Public Safety. In our first attempts to achieve interoperability we looked at the 700 MHz range. We found that in what we were trying to achieve, the 700 MHz range wasn't a feasible solution at the time. The infrastructure did not exist to make the 700 band work for Vermont. Vermont also lacks widespread broadband access, which as you know the Governor is trying to solve. VCOMM continues to watch the "D Block" discussion, and other technologies, in the event that it (they) could benefit Vermont in its quest for interoperable communications.

Vermont's major challenges surfaced because of Line A issues with Canada. Line A stems from a 1962 Treaty between the US and Canada. This treaty effective when signed, does not meet the challenges of a post-911 world. All US applications from anywhere above Line A need Industry Canada's approval. This has historically been a very time consuming process, often resulting in the failure to obtain approval for frequency requests.

A second problem that Vermont faced was that we chose to utilize the National Calling and Tactical frequencies. These were recommended by the FCC and other communications groups. However, these also fell under Industry Canada jurisdiction and no one (the FCC or others) had coordinated these frequencies with Canada before recommending their use. Consequently we were only able to obtain authorization for one of five requested VHF frequencies.

Another challenge faced by Vermont was the match component of the PSIC grant. Given the non-extendable deadline, Vermont has found it very difficult to achieve the match requirement. Vermont would strongly support removing the match requirement, and if possible extending the September 2010 deadline.



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October 27, 2009

Earley Green
Chief Clerk
United States House of Representatives
Room 2125
Rayburn House Office Building
Washington, DC 20515-6115

Dear Chief Clerk Green:

Please find enclosed the responses to the written questions for the record from members of the Subcommittee on Communications, Technology, and the Internet concerning the September 24, 2009 hearing entitled, "A National Interoperable Broadband Network for Public Safety: Recent Developments."

The Honorable Bart Stupak

Q1. Is everyone in agreement that some form of consistent federal funding, especially for rural areas and other high cost areas, would be necessary for the construction of the national interoperable network, especially if we are talking about 4G ?

A1. Yes. The potential commercial customer base in rural areas would be insufficient to support the network in the current economic environment. Increases in population and an increase in commercial and public demand for broadband services could help to mitigate the shortfall, but it is unlikely that the network would be profitable in these areas for the foreseeable future.

The Honorable Cliff Stearns

Q1. Let's assume we give public safety the D block; how much money would it cost to build out the public safety network and where will this money come from?

A2. It is premature to estimate costs since network performance specifications have not been firmly established. (There was a set of requirements set forth for prior to the auction; however a different set of



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Earley Green, Chief Clerk

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network and coverage requirements, significantly relaxed from the original was proposed in the Third Further Notice of Proposed Rulemaking (3FNPRM). This document also proposed a second auction by region.) The inability of potential bidders to accurately gauge network implementation costs was a major factor in the failure of the first auction.

Some funding can be secured by forming public-private partnerships with existing wireless carriers, however as stated above this funding is unlikely to be sufficient to fund the network costs in rural or high cost areas. Relaxing network robustness requirements would defeat the purpose of the network as it would result in a "public safety network" that would be no more reliable than existing commercial networks.

Q2. If the FCC were to once again auction the D Block with Public Safety conditions, do you have confidence that you could negotiate a spectrum sharing agreement with companies that would meet your needs and still be within your budget?

A2. No, I am not confident. The costs to deploy the network and the substantial risk that these costs may not be recoverable remain major unknowns. It may be possible in some areas but not in others depending upon local demand for broadband services. In the future, this situation may change as economic conditions improve and the demand for broadband network access increases nationwide. As noted above, reducing network coverage and robustness requirements would increase the likelihood of forming a successful public private partnership, but the resulting network would not meet our needs.

Q3. Some argue that the 24MHz public safety already has is not enough to build the broadband network because half will be used for narrowband voice. But haven't more than 10 cities filed waiver (requests) with the FCC asking to build their broadband networks on just 10MHz of the 24MHz? And aren't some cities planning to use VOIP instead of narrowband voice, which means they could use for broadband all of the 24MHz, the 2005 DTV legislation already cleared for them?



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Earley Green, Chief Clerk

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A3. Your question raises several issues.

1.) Both narrowband channels and broadband channels require a buffer or guard band between channels. Broadband designs aggregate spectrum into much wider channels, however they still require a guard band at the channel edges. In a broadband network design, these guard bands are much larger than in a narrowband network, but since there are only two of them, rather than hundreds, the net effect is a more spectrally efficient network consisting of one very wide channel bounded by two rather wide guard bands.

Although 24 MHz is allocated to Public Safety, it is allocated in two blocks, broadband and narrowband, 12MHz each. The Broadband spectrum will require 1MHz guard bands on either side, leaving 10MHz of usable spectrum. This 10MHz is divided into two non contiguous blocks of 5MHz each, one block for uplink, one for downlink.

The D Block consists of two 5MHz spectrum chunks, one for uplink and one for downlink. These spectrum blocks are adjacent to the Public Safety uplink and downlink spectrum blocks making them ideal for spectrum aggregation in a broadband network.

2.) Narrowbanding is an FCC initiative designed to improve spectrum efficiency that has been stated policy since 1996. Many jurisdictions have constructed, or are in the process of constructing, narrowband mission critical voice radio systems. Hundreds of millions of dollars have been invested in this technology.

3.) New York City, and in particular the New York City Police Department, have expressed a desire to pilot a mission critical voice proof of concept as an application on the 700 MHz Public Safety broadband network they would like to deploy. This initiative is a mechanism intended to push the wireless industry to focus on, and perfect, mission critical voice applications on an LTE broadband network, in as short a



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Earley Green, Chief Clerk

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timeframe as possible. They believe that ultimately there will be a single broadband network capable of supporting both mission critical voice and data.

We applaud them for their effort. However, others argue that their vision will not become a reality for many years. Our position is simply that we cannot be certain if this effort will succeed or in what timeframe. Until we are certain, we cannot embrace broadband mission critical voice nor can we advocate converting narrowband channels to broadband. As a final note, neither New York City nor the NYPD advocates converting the 700 MHz narrowband channels to broadband because they recognize that many jurisdictions are heavily invested in narrowband mission critical voice technology nor they do not wish to disrupt these projects.

All the best,

WILLIAM J. BRATTON
 Chief of Police, City of Los Angeles
 President, Major Cities Chiefs'

The Honorable Bart Stupak
2268 Rayburn House Office Building
Washington, DC 20515

Dear Congressman Stupak,

Below please find an answer to your question submitted following the September 24, 2009 hearing, "A National Interoperable Broadband Network for Public Safety: Recent Developments."

1. Is everyone in agreement that some form of dedicated, consistent, federal funding, especially for rural areas and other high cost areas, would be necessary for the construction of the national interoperable network, especially if we're talking about 4G?

The National Emergency Number Association (NENA) strongly believes that some form of consistent, dedicated, recurring funding is essential if we are to have a nationwide public safety broadband network, or a network accessible to, and meeting the needs of, public safety.

It is important to underscore that funding for such a network needs to be consistent, dedicated, and recurring, similar to what has been done to provide internet service to our nation's schools and libraries. Through the creation of a consistent and recurring funding mechanism, public safety will be able to engage in long-term planning for network construction and maintenance, as well as provide for equipment, applications and training costs.

The amount of federal funding necessary will vary according to the model implemented by Congress and the Federal Communication Commission. For example, if Congress were to exchange the 10 MHz public safety broadband spectrum block for access to a 20 MHz commercial network, then the 20 MHz commercial block could be auctioned with conditions supporting public safety (similar to those proposed by the FCC in the *700 MHz Third Further Notice of Proposed Rulemaking*). In this context, federal funding would be needed to access the commercial network rather than to build a stand-alone public safety network. The Federal funding approach mentioned above (annual, recurring, and dedicated) could help build out networks in uneconomic areas. This would be substantially less costly than building a stand-alone network.

Regarding the other options mentioned at the hearing, if the FCC maintains a version of the currently envisioned public safety/commercial partnership, then the costs would still be less than building a stand-alone public safety broadband network, since the D Block winner would be building the network. On the more costly side are the proposals that

would auction the D Block without a public safety/commercial partnership requirement, or have public safety build their own broadband network in its currently allocated 10 MHz broadband block.

The final proposal, the reallocation of the D Block to public safety, would be costly as well. The advocates of this approach believe that sufficient funding would be available through "leveraging" or leasing excess capacity coupled with traditional funding sources. NENA does not believe that this approach would generate sufficient revenues to build and maintain a nationwide public safety broadband network. In mid-sized to smaller markets, including many rural areas, there simply is not the shortage of commercial spectrum necessary to make leveraging profitable. Furthermore, as LTE is emerging as the de facto 700 MHz standard, roaming partners should not be an issue for commercial providers, thereby reducing demand for excess public safety broadband capacity even further. Finally, many cities and municipalities require contracts or agreements between the city and its sub-entities to be approved by the city manager, attorney or mayor, and revenues generated by these agreements are often returned to the city's general revenues. Thus, some of the money generated by leveraging or leasing may not be available for its intended use – the public safety broadband network.

The Honorable Cliff Stearns
2370 Rayburn House Office Building
Washington, DC 20515

Dear Ranking Member Stearns,

Below please find below answers to your questions submitted following the September 24, 2009 hearing, "A National Interoperable Broadband Network for Public Safety: Recent Developments."

1. Let's assume we give public safety the D-Block. How much will it cost to build out the public safety network and where will this money come from?

It is never easy to predict the cost of building a network, since there are so many variables that have to be factored into the equation. For example, how much of the public safety network will be shared with commercial networks, or other public safety and state networks? How much money will Federal, state and local governments contribute to building and maintaining the network? Some advocate for the reallocation of the D Block from commercial use to public safety and seek the rights to "leverage" that spectrum. It is unclear what "leveraging" means or how to value such leveraging, but nonetheless it is a potential revenue source. However, if "leveraging" allows for the lease of excess capacity, then, in small and rural markets, I predict there would be minimal demand for this spectrum and, thus, substantial revenues would not be generated. Also, the fundamental question remains: Will revenues generated from "leveraging" spectrum be reinvested in public safety broadband in the 700 MHz band or will the revenues go into the general treasury or other non-broadband accounts?

2. Some public safety entities in large cities have indicated that they have sufficient funding [and] that they are prepared to start deploying broadband now on the 24MHz they already have. Others indicate that they might self-finance if they were given the D-Block for free. Can smaller cities afford to take either of these two approaches?

Some cities may be in the financial position to begin building broadband in the 700 MHz public safety spectrum. The FCC is currently addressing waivers filed seeking early access to this spectrum. If the Commission determines the waivers warrant granting, then so be it. The primary concern expressed by NENA is that those municipalities/states that are authorized to build broadband systems in the 700 MHz

band before the FCC addresses the D Block issues must be capable of integrating into the national public safety broadband network.

NENA is not in a position to assess if individual smaller cities would have sufficient funding to build a 700 MHz broadband network of their own. However, NENA believes that the vast majority of smaller cities would not have the commercial demand for public safety spectrum to warrant a self-financing or leveraging arrangement to build a 700 MHz public safety broadband network, even if they were given the D Block.

3. When the previous commission testified, they said that what public safety really needs is money. They said they would have preferred to give public safety the funds to build the broadband network, but the statute does not authorize the FCC to do so. Do you agree that what public safety really needs is money?

Money is clearly a need for public safety, but not necessarily in the form of the traditional funding methods. Historically, Federal and state funding has taken the form of one-time grants, with monies often only made available for radios or planning purposes. For public safety agencies lacking the support of significant local/state funding, such grants do not allow them to engage in the activities necessary to build, maintain, or acquire equipment and applications, or provide for training.

In the 9-1-1 sector, funding varies from state to state, and frequently these funds are diverted to make up for budget shortfalls in other areas. Thus, a preferred approach to funding would be the creation of a revenue source that is annual, predictable, and allocated only for the intended purposes of public safety broadband (both wired and wireless) networks, connectivity, applications, training and equipment. Such funds must not be susceptible to diversion to non-public safety broadband purposes.

About a decade ago, our nation recognized the need to connect our schools and libraries to the Internet to provide school children with an important educational resource. As importantly, our nation's leaders recognize the value of broadband, and the valuable role that broadband can play in improving our public safety and homeland security. Thus, we must ensure that funding is available to achieve this objective – ubiquitous broadband available to our nation's public safety entities.

Regardless of the approach taken by policy makers to provide public safety with access to a broadband network, (public safety/commercial partnership, public safety leasing broadband network[s]) from commercial providers or the reallocation of the D Block to public safety) adequate funding is imperative. However, it should be noted that the degree and level of annual, predictable, raid-proof funding necessary may vary based

on the approach taken by government officials with respect to public safety broadband in the 700 MHz band.

Finally, closely related to the funding issue described above, is the need for strong leadership, dedicated to transitioning public safety into the broadband age. The timing is perfect to exercise this leadership, as our nation fully understands the value of broadband. We can learn from our past lessons on funding, and must take this opportunity to ensure that our public safety services always remains current and our citizens remain well served through the advances made available to public safety by broadband networks and applications.



**Public Safety
Spectrum Trust**

1101 K Street, NW, Suite 8100
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October 27, 2009

The Honorable Cliff Stearns
United States House of Representatives
Washington, DC 20515

**RE: Subcommittee on Communications, Technology, and the Internet, Hearing 09/24/09
"A National Interoperable Broadband Network for Public Safety: Recent Developments"**

Dear Congressman Stearns:

The following is in response to your questions:

Question 1.

Let's assume we give public safety the D-block. How much will it cost to build out the public safety network and where will this money come from?

Answer

Chief Harlin R. McEwen, Chairman of the Public Safety Spectrum Trust (PSST) and Chairman of the Communications & Technology Committee of the International Association of Chiefs of Police (IACP).

- A. There are too many unknown or undecided variables directly and indirectly affecting network costs for anyone to estimate the cost to build out a nationwide, interoperable wireless public safety 4G broadband network at this time. In the absence of any dedicated federal funding, we are currently focused on a public/private partnership structure where private partners would fund the cost to build and maintain the network. Until the private partners are identified and it is known what infrastructure assets they already own, it is impossible to make any accurate cost estimates. For example, we know that the more infrastructure that is owned by the private partner(s), the less expensive and faster it likely will be to build and maintain the network. The PSST would be willing to engage in further discussions relative to this with you or your staff.
- B. The PSST has continued to engage in discussions with potential private partners regarding building and maintaining a nationwide, interoperable public safety 4G broadband network pursuant to a public/private partnership and a network sharing agreement. Based on these discussions, the PSST is convinced there are both large and small commercial companies, including nationwide, regional, and smaller rural wireless carriers (as well as infrastructure providers, equipment manufacturers, and other vendors) who are very interested in partnering with public safety. These companies have advised the PSST that they believe there is a business case for them to build and maintain all or a portion of the nationwide network.
- C. Due to the uncertainty stemming from the previous D Block auction, almost all of the national public safety organizations have reached a consensus position in which they are advocating that Congress direct the FCC to remove the D Block auction requirements and allocate that spectrum directly to the nationwide 700 MHz Public Safety Broadband Licensee (PSBL). The PSST is the PSBL. Under this approach, instead of the PSBL negotiating a network sharing agreement with auction winner(s), the PSBL would have authority to establish a Request

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For Proposal (RFP) process and invite private partners to submit proposals to build and maintain the network. The PSST also supports local/regional buildouts by public safety entities that would contribute to the development of interoperable broadband deployment nationwide. Such local/regional buildouts would be accomplished through waiver grants and/or rule changes by the FCC and spectrum leases between the PSST and interested local/regional public safety entities.

D. We hope that Congress will support such a legislative proposal.

Question 2.

If the FCC were to once again auction the D-block with public safety conditions, do you have confidence that you could negotiate a spectrum sharing agreement with companies that would meet your needs and still be within your budget?

Answer:

Chief Harlin R. McEwen, Chairman of the Public Safety Spectrum Trust (PSST) and Chairman of the Communications & Technology Committee of the International Association of Chiefs of Police (IACP).

Yes. The PSST was prepared to negotiate a spectrum sharing agreement when the FCC first auctioned the D Block in 2008, and had done considerable work in preparing a template for such an agreement. The PSST also proposed detailed network sharing rules in comments filed last year in response to the FCC's rulemaking proceeding to determine the future course of the D Block. If Congress does not reallocate the D Block to the PSBL, and the FCC reauctions the D Block with public safety conditions, the PSST will be prepared to negotiate an agreement (or agreements) with the D Block auction winner(s). The PSST has continued to engage in discussions with potential private partners regarding building and maintaining a nationwide, interoperable public safety 4G broadband network pursuant to a public/private partnership and a network sharing agreement. Based on these discussions, the PSST believes that if the FCC revises its rules governing the D Block and the 700 MHz public/private partnership so as to facilitate a successful D Block reauction, it can successfully partner with commercial companies to build and maintain all or a portion of the nationwide network.

Respectfully,



Chairman
Public Safety Spectrum Trust
chiefhrm@pubsaf.com
(607) 227-1664



**Public Safety
Spectrum Trust**

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October 27, 2009

The Honorable Bart Stupak
United States House of Representatives
Washington, DC 20515

**RE: Subcommittee on Communications, Technology, and the Internet, Hearing 09/24/09
"A National Interoperable Broadband Network for Public Safety: Recent Developments"**

Dear Congressman Stupak:

The following is in response to your question:

Question:

Is everyone in agreement that some form of dedicated, consistent, federal funding, especially for rural areas and other high costs areas, would be necessary for the construction of the national interoperable network, especially if we're talking about 4G?

Answer:

Chief Harlin R. McEwen, Chairman of the Public Safety Spectrum Trust (PSST) and Chairman of the Communications & Technology Committee of the International Association of Chiefs of Police (IACP).

- A. Funding is a critical aspect, and everyone agrees that some form of dedicated, consistent funding is necessary for the construction and maintenance of a nationwide, interoperable wireless public safety 4G broadband network. We believe dedicated federal funding would be the best option for ensuring that the wireless broadband network not only meets public safety's current needs but continues to meet those needs in the future. However, until now there has been no support from members of Congress to provide any federal funding to support the construction and maintenance of the network. We would welcome any dedicated federal funding to support our efforts.
- B. In the absence of any dedicated federal funding for a nationwide, interoperable wireless broadband network, the public safety community has focused our efforts on other funding options.
- C. The Federal Communications Commission (FCC) has repeatedly recognized the importance of establishing a nationwide, interoperable public safety 4G broadband network. It also recognized the funding challenges that public safety faces. On July 31, 2007, the FCC issued a Second Report and Order (2nd R&O), in which it established (in the absence of any dedicated federal funding) another option for constructing and maintaining the network based upon a public/private partnership structure

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- D. The FCC's 2nd R&O set forth rules that presumed the 700 MHz "D Block" spectrum would be sold at auction. It directed that the D Block auction winner be required to form a public/private partnership with the 700 MHz Public Safety Broadband Licensee (PSBL). The PSST is the PSBL. The FCC's rules directed that the partnership would be accomplished as the result of a network sharing agreement to be negotiated between the D Block winner and the PSBL.
- E. The FCC auctioned the D Block in January 2008, but the auction did not result in any winning bids for the D Block spectrum. While there has been considerable speculation as to why the D Block auction failed to attract any winning bids, as of this time (October 2009), no further rules have been issued by the FCC with respect to the D Block or the public/private partnership, and no D Block reauction has been scheduled.
- F. Since the auction, the PSST has continued to engage in discussions with potential private partners regarding building and maintaining a nationwide, interoperable public safety 4G broadband network pursuant to a public/private partnership and a network sharing agreement. Based on these discussions, the PSST is convinced that there are both large and small commercial companies, including nationwide, regional, and smaller rural wireless carriers (as well as infrastructure providers, equipment manufacturers, and other vendors) who are very interested in partnering with public safety. These companies have advised the PSST that they believe there is a business case for them to build and maintain all or a portion of the nationwide network.
- G. Due to the uncertainty stemming from the previous D Block auction, almost all of the national public safety organizations have reached a consensus position in which they are advocating that Congress direct the FCC to remove the D Block auction requirements and allocate that spectrum directly to the nationwide PSBL. Under this approach, instead of the PSBL negotiating a network sharing agreement with auction winner(s), the PSBL would have authority to establish a Request for Proposal (RFP) process and invite private partners to submit proposals to build and maintain the network. The PSST also supports local/regional buildouts by public safety entities that would contribute to the development of interoperable broadband deployment nationwide. Such local/regional buildouts would be accomplished through waiver grants and/or rule changes by the FCC and spectrum leases between the PSST and interested local/regional public safety entities.
- H. We hope that Congress will support such a legislative proposal.

Respectfully,



Chairman
Public Safety Spectrum Trust
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The Honorable Bart Stupak
2268 Rayburn House Office Building
Washington, DC 20515

Dear Congressman Stupak,

Please find below an answer to your question submitted following the hearing on September 24, 2009 titled "A National Interoperable Broadband Network for Public Safety: Recent Developments."

Question

1. Is everyone in agreement that some form of dedicated, consistent, federal funding, especially for rural areas and other high cost areas, would be necessary for the construction of the national interoperable network, especially if we're talking about 4G?

Answer

It is unclear if everyone is in agreement that some form of federal funding is needed. Everyone is in agreement that funding is a major challenge to the establishment of a nation-wide public safety wireless broadband network. The funding challenge was in fact why the FCC originally proposed the D Block public/private partnership. The Major Cities Chiefs and some national public safety organizations are no longer in favor of an auction of the D Block and believe that if the D Block is provided to public safety, giving public safety a 20 MHz block of 700 MHz spectrum, public safety will then be able to leverage this spectrum in some fashion to enable the buildout of municipal, regional or state networks. The details about how such "leveraging" will work, and therefore the specific source of funding for such buildout, is unknown. It is also unclear whether these organizations believe additional federal funding is needed if their approach is adopted.

As a public safety leader from a rural area, I am concerned that without some form of a consistent, regularly recurring source of funding for public safety broadband needs (wireless and wired), broadband will be a long time coming in rural areas. A significant concern I have with the proposal of the Major Cities Chiefs is that I do not believe there is a spectrum shortage in rural America and that wireless carriers will not readily partner with public safety in many rural areas. Therefore, while some form of leveraging may be possible to form partnerships with commercial carriers in urban, and even suburban, parts of the country, I am concerned that such partnerships will not emerge in rural America.

Therefore, I believe it is essential that some form of a dedicated, consistent, regularly recurring federal funding is needed for public safety wired and wireless broadband needs, particularly for rural and other high cost areas. Such funding must be dedicated for broadband and unable to be diverted for other purposes. One model that could be looked at is the E-rate program which has been a successful dedicated funding program for school and library Internet access. Key to this is that the funds must be consistent and regularly recurring (just as USF funds for the E-rate are consistent and regularly recurring and only available for a single dedicated purpose). Also the funds must be available for more than the physical "construction" of networks. Rather, the funds

should be available for eligible public safety entities (criteria to be determined) for public safety broadband infrastructure, equipment, applications and training.

In short, federal funding is needed. The funding must be dedicated for public safety broadband needs (wired and wireless) and unavailable for any other purpose. The funding must be available on a consistent and regularly recurring basis, not a one-time appropriation or generally subject to the unpredictable nature of annual appropriations. Finally, the funds must be available for more than just physical infrastructure to also include equipment, applications and training.

The Honorable Cliff Stearns
2370 Rayburn House Office Building
Washington, DC 20515

Dear Ranking Member Stearns,

Please find below an answer to your questions submitted following the hearing on September 24, 2009 titled "A National Interoperable Broadband Network for Public Safety: Recent Developments."

Question

1. Let's assume we give public safety the D Block. How much will it cost to build out the public safety network and where will this money come from?
2. Some public safety entities in large cities have indicated that they have sufficient funding that they are prepared to start deploying broadband now on the 24 MHz they already have. Others indicate that they might self-finance if they were given the D Block for free. Can smaller cities afford to take either of these approaches?

Answer

1. It is unclear how much it will cost to build out the public safety network nation-wide. There are several approaches under consideration as to how to enable the build out, and numerous factors that impact cost that remain unknown, including the following factors:
 - How much infrastructure will be shared with commercial entities
 - Build out schedule
 - Contributions of municipalities/states
 - Coverage area of the network(s)
 - Characteristics/requirements of the network(s)
 - Size/number of privately negotiated ("leveraged") public/private partnerships and the details of such arrangements

It is also uncertain where the funding will come from to ensure there is a nation-wide wireless public safety broadband network available in all areas.

2. For those cities that have sufficient funds in place to build out a broadband network today, that is great for them. But that will not be a common scenario. More often than not, most cities and states will not have sufficient funding to build out their own network. While giving public safety more spectrum sounds good on its face, simply having more spectrum does not mean necessarily equate to being able to build a network, or to being able to leverage that spectrum to form a partnership with a commercial carrier.

A significant concern I have with the proposal of the Major Cities Chiefs to give the D Block to public safety is that I do not believe there is a spectrum shortage in rural America and that wireless carriers will not readily partner with public safety in many rural areas. Therefore, while some form of leveraging may be possible to form partnerships with commercial

carriers in urban, and even suburban parts of the country, I am concerned that such partnerships will not emerge in rural America.

Therefore, I believe it is essential that some form of a dedicated, consistent, regularly recurring federal funding is needed for public safety wired and wireless broadband needs, particularly for rural and other high cost areas. Such funding must be dedicated for broadband and unable to be diverted for other purposes. One model that could be looked at is the E-rate program which has been a successful dedicated funding program for school and library Internet access. Key to this is that the funds must be consistent and regularly recurring (just as USF funds for the E-rate are consistent and regularly recurring and only available for a single dedicated purpose). Also the funds must be available for more than the physical "construction" of networks. Rather, the funds should be available for eligible public safety entities (criteria to be determined) for public safety broadband infrastructure, equipment, applications and training.

In short, for many areas, federal funding is needed. The funding must be dedicated for public safety broadband needs (wired and wireless) and unavailable for any other purpose. The funding must be available on a consistent and regularly recurring basis, not a one-time appropriation or generally subject to the unpredictable nature of annual appropriations. Finally, the funds must be available for more than just physical infrastructure to also include equipment, applications and training.

AT&T Response to Follow-Up Question from Rep. Stupak

- 1. Is everyone in agreement that some form of dedicated, consistent, federal funding, especially for rural areas and other high costs areas, would be necessary for the construction of the national interoperable network, especially if we're talking about 4G?**

AT&T, for one, believes that some level of dedicated federal funding will be required. There are, however, existing federal grant programs that can be used by individual agencies, or regional consortia, but these programs will most likely need to have incremental funding added for public safety broadband. We also believe these grant programs should be modified to provide for operations and maintenance of interoperability solutions as the recent Public Safety Interoperable Communications grant program did.¹ Further, we believe any grants should require the applicant to leverage commercial infrastructure as much as possible to maximize taxpayer investment. In any event, the funding should be done on a region by region basis – not as a nationwide grant. Local agencies and regional consortia need the flexibility to choose a network management model that meets their financial as well as communications requirements.

Notably, it is because we are aware of the fiscal challenges – especially in the current economic and budgetary climate – of securing this dedicated function that AT&T supports a model that leverages commercial infrastructure. Imagine the simplicity of only having to add a base station radio, tuned to the public safety spectrum, to a cellular operator's cell sites in order to complete a 700 MHz LTE broadband network. Using the operator's ordering, customer care, and billing systems will save public safety agencies and communities from having to create these operational support systems from scratch. We believe this is a desired option for many agencies, and those that want hardened, "mission critical" cell sites, have the option to install that same base station radio in their own facilities and connect to the operator's core network. Either way, leveraging existing commercial networks will ensure that the total cost of deploying broadband networks for public safety will be substantially less than the costs of deploying multiple, independent, greenfield networks.

¹ See "Public Safety Interoperable Communications Grant Program - FREQUENTLY ASKED QUESTIONS, DHS and NTIA, page 5

AT&T Response to Follow-Up Questions from Rep. Stearns

- 1. If we pass legislation giving the D-block to public safety, will AT&T help build out the network at no cost in exchange for access to the spectrum, or will AT&T require a fee? If AT&T will require a fee, how much, and where will public safety get this money?**

AT&T does not believe spectrum leasing is a viable alternative for public safety to fund the buildout of their networks. The likely lease rates in smaller and rural areas, where the relative value of the spectrum is low, will generate insufficient revenue to fund buildout of public safety networks. Instead, there will be a need for federal funding to deploy and operate public safety network in these areas. Thus, we do not believe that spectrum-access, alone, will fully fund the network capabilities that public safety needs. That said, leveraging existing commercial network, as discussed in our testimony before the Subcommittee and in response to Rep. Stupak's question, above, will minimize the total amount of needed investment and expense.

And, other funding sources exist. One option would be for multiple rural areas to pool their resources to achieve economies of scale and build regional networks. We believe Ohio's Multi-Agency Communications System (MARCS) is an excellent example that the Subcommittee should examine as a successful public-private partnership. More information on MARCS is available at:
<http://www.oit.ohio.gov/SDD/Marcs>.

- 2. Some public safety officials believe they might be able to generate revenue by leasing the D block to commercial providers in times of non-emergency. Would AT&T be willing to pay public safety for such access? If so, how much?**

As we mentioned in response your previous question, AT&T does not believe spectrum leasing is a complete alternative to direct funding or grants.

**United States Cellular Corp. Responses to House Subcommittee on Communications
Questions Regarding Testimony of Joseph R. Hanley on September 24, 2009**

Hon. Bart Stupak. Question 1. Is everyone in agreement that some form of dedicated, consistent, federal funding, especially for rural areas and other high costs areas, would be necessary for the construction of the national interoperable network, especially if we're talking about 4G?

Answer. Dedicated, consistent, federal funding may not be necessary for the construction of the nationwide interoperable network. First, under reasonable rules, the inherent efficiency of a shared network leveraging existing service provider assets would minimize the cost of building and operating the network. Second, service providers are facing increasing demand for data services and have a limited supply of spectrum. They will support the costs of the network if they have an opportunity to use shared network capacity to meet the needs of their commercial customers. This favorable combination of shared networks to reduce the cost of construction and operations and shared use to inject commercial value into the economics would allow for the ongoing provision of services to public safety users at the lowest possible cost.

Shared public safety/commercial networks using the PSBL (Public Safety Broadband Licensee) and D Block spectrum will benefit from three basic facts. First, as commercial carriers are deploying infrastructure for mobile broadband services, they are financing billions of dollars of network investment annually. According to CTIA (a wireless industry association), wireless carriers in the U.S. were making \$19.5 billion in annualized incremental capital investments as of June 2009. Starting in 2010, carriers will also finance billions of dollars of network infrastructure for 4G services.

Second, carriers paid over \$19 billion for other 700 MHz licenses in 2008 and have expressed keen interest in buying significant amounts of additional spectrum. Under reasonable rules, commercial operations on shared public safety/commercial networks using the PSBL and D Blocks would have substantial value to carriers. In many or all areas, commercial operators would be willing to satisfy reasonable public safety standards and interoperability requirements in exchange for the rights to use portions of the shared spectrum and networks for commercial services.

Third, shared public safety/commercial networks will provide strong economies in building and operating the network because they make use of existing assets. These economies reduce the costs of providing services to public safety users, meeting public safety technical standards, and covering geographic areas desired by public safety.

In conclusion, with these favorable economics, an auction or other market mechanism based on reasonable rules for a shared network may show that federal funding is not needed to interest commercial operators in building the nationwide interoperable network. There is widespread agreement that the fatally-flawed rules for the auction in 2008 did not provide a good test of the economics for a shared network. On the other hand, it is possible that an auction or other market mechanism may show that, even with reasonable rules, there is still a need for federal funding to construct the network in certain areas. The economics of shared networks and shared use would ensure that this funding requirement was minimized.

Hon. Cliff Stearns. Question 1. If we pass legislation giving the D-block to public safety, will US Cellular help build out the network at no cost in exchange for access to the spectrum, or will US Cellular require a fee? If US Cellular will require a fee, how much, and where will public safety get this money?

Answer. US Cellular is interested in acquiring rights to use additional spectrum to provide commercial services in certain areas. Under reasonable rules for shared use of the spectrum and networks, US Cellular will help build out the network at no cost to public safety in exchange for commercial access to the spectrum in such areas and commercially reasonable usage fees.

Shared public safety/commercial networks using the PSBL and D Block spectrum will benefit from three basic facts. First, as commercial carriers are deploying infrastructure for mobile broadband services, they are financing billions of dollars of network investment annually. According to CTIA (a wireless industry association), wireless carriers in the U.S. were making \$19.5 billion in annualized incremental capital investments as of June 2009. Starting in 2010, carriers will also finance billions of dollars of network infrastructure for 4G services.

Second, carriers paid over \$19 billion for other 700 MHz licenses in 2008 and have expressed keen interest in buying significant amounts of additional spectrum. Under reasonable rules, commercial operations on shared public safety/commercial networks using the PSBL and D Blocks would have substantial value to carriers. In many or all areas, commercial operators would be willing to satisfy reasonable public safety standards and interoperability requirements in exchange for the rights to use portions of the shared spectrum and networks for commercial services.

Third, shared public safety/commercial networks will provide strong economies in building and operating the network because they make use of existing assets. These economies reduce the costs of providing services to public safety users, meeting public safety technical standards, and covering geographic areas desired by public safety.

After network construction, in order to encourage efficient use of the shared networks and make them commercially viable, public safety users should make payments for services at rates which cover the costs of the services they use (rates which are, however, discounted from commercial rates).

If public safety users request services that would make the shared networks not commercially viable in certain areas, then some federal, state or local funding would be necessary for US Cellular to build the network or to provide such capabilities in those areas. The amounts of any such funding would depend on the rules for shared use of the spectrum and networks, the numbers of public safety users, the types and volumes of public safety uses, the particular geographic areas, and other factors.

Hon. Cliff Stearns. Question 2. Some public safety officials believe they might be able to generate revenue by leasing the D-block to commercial providers in times of non-emergency. Would US Cellular be willing to pay public safety for such access? If so, how much?

Answer. Shared public safety/commercial networks would efficiently use the PSBL and D-Block spectrum and have capacity exceeding the needs of public safety during times of non-emergency in all or most areas. Under reasonable rules for shared use of the networks and spectrum, US Cellular would be willing to pay public safety for the rights to use such networks and spectrum in certain areas. Such payments may take the form of commitments by US Cellular to build and operate the shared networks, with the technical standards and other requirements to support public safety services.

The terms for any leases of the D-Block spectrum to commercial operators must be consistent with the long-term investments in network infrastructure and operations that commercial operators would be expected to make. A short lease term, any commercially unreasonable requirements, or uncertainties about important rules for commercial uses of the spectrum (technical standards, conditions for preemptive use by public safety, rates charged to public safety for use of the D-Block, etc.) would substantially decrease the value of the D-Block to commercial operators and, consequently, their willingness to make payments to or to perform network construction for public safety.

The amounts that US Cellular would be willing to pay public safety for such access depends on the rules for shared use, technical standards and other requirements, geographic areas, and other factors.

Written Response of

**Kostas Liopiros
The Sun Fire Group**

to

Questions for the Record from the Honorable Cliff Stearns

**House Subcommittee on Communications, Technology and the Internet
Committee on Energy and Commerce
United States House of Representatives**

**September 24, 2009 Hearing on
“A National Interoperable Broadband Network For
Public Safety: Recent Developments”**

1. From an engineering perspective, if we auctioned the D-block for commercial purposes without public safety conditions, is the 24 MHz that public safety already has enough to build the broadband network even if they use half of it for traditional, narrowband voice? If it isn't, could they move to VoIP and use the entire 24 MHz for the broadband network? Alternatively, would it be technically possible for them to combine their spectrum with that of another commercial provider?

2. Some argue that the 24 MHz public safety already has is not enough to build the broadband network because half will be used for narrowband voice. But haven't more than 10 cities filed waivers with the FCC asking to build their broadband networks on just 10 MHz of the 24 MHz? And aren't some cities planning to use VoIP instead of narrowband voice, which means they could use for broadband all of the 24 MHz the 2005 DTV legislation already cleared for them?

Question: Is the 24 MHz that public safety already has enough to build the broadband network even if they use half of it for traditional, narrowband voice?

Answer:

From an engineering perspective, even with 12 MHz of spectrum dedicated to narrowband voice, the remaining 10 MHz is more than adequate to build a broadband network. (Two MHz of spectrum is used for guard bands between the voice and broadband segments in order to prevent interference between the two).

The best choice of technology for the public safety wireless broadband network is long-term evolution (LTE) technology, which has been endorsed by a number of public safety organizations and agencies for constructing public safety broadband networks. LTE technology will be used by Verizon, AT&T and others elsewhere in the 700 MHz

band. LTE technology is designed to support a variety of frequencies and band plans -- including the 10 MHz (5 MHz pair) band plan in the 700 MHz public safety spectrum band.

That 10 MHz is sufficient for a public safety broadband network has been demonstrated in practice as several communities have deployed public safety networks using 10 MHz or less of spectrum. For example, New York City currently operates a public safety broadband network (New York City Wireless Network (NYCWiN)) in 10 MHz of leased spectrum in the 2.5 GHz band. Washington D.C. operates a regional public safety broadband network (Regional Wireless Broadband Network (RWBN)) using 2.5 MHz of spectrum in the 700 MHz public safety band (narrowband voice segment) under a special temporary authority (STA) from the FCC.

The adequacy of 10 MHz of bandwidth to support public safety operational requirements is also recognized by the state and local public safety agencies that have sought FCC approval to deploy broadband systems in the 10 MHz public safety allocation.

Estimates of the amount of spectrum required for public safety are based on an extrapolation of the technologies, architectures and operational concepts that have been used traditionally for public safety communication systems and on the patterns of equipment and spectrum usage in the Los Angeles area in 1995. These assumptions are not valid 14 years later, especially for building out the 24 MHz of public safety spectrum in the 700 MHz band. Modern, IP-based broadband technologies, such as LTE, using cellular-type networks, are more efficient and provide considerably greater spectrum reuse than traditional two-way radios. Thus far less spectrum is required, than projected previously, to meet public safety's broadband needs.

Question: If it isn't, could they move to VoIP and use the entire 24 MHz for the broadband network?

Answer:

By adopting voice-over-internet protocol (VoIP) technology, the entire 24 MHz of public safety spectrum in the 700 MHz band could be used to provide converged voice and data services. The convergence of data and voice services onto one broadband network would provide significant efficiencies and cost savings. With one converged network spectrum could be used for voice or data services as needed, resulting in more efficient use of the 24 MHz of spectrum. One converged network would also result in significant savings since two separate wireless networks would not have to be built, operated and maintained. Further, with one network the two MHz dedicated to guard bands would be used to provide useful services.

Commercial wireless broadband networks already provide VoIP and push-to-talk (PTT) voice capabilities and VoIP will be included in the next version of the LTE standard. Commercial VoIP land-mobile radio networks provide capabilities similar to

that required by public safety mission critical voice systems -- such as access to the public switched telephone network (PSTN), push-to-talk, one-to-one and one-to-many. Vo capability can also be provided by systems that employ LTE as the next version of the LTE standard is planned to include VoIP capabilities.

Question: Alternatively, would it be technically possible for them to combine their spectrum with that of another commercial provider?

Answer:

It is technically possible to combine the 10 MHz of public safety broadband spectrum with the spectrum of one or more commercial providers. This may be desirable at some time in the future to provide additional capacity in particular areas. The public safety band and commercial band do not necessarily have to be contiguous.

The technology to combine disparate spectrum bands is used today in cellular systems. Every commercial wireless carrier in the U.S. operates networks on multiple frequency bands, with multiple frequency blocks within each band. Some carriers combine spectrum using different wireless technologies. Wireless handsets (and other consumer devices) are designed to operate seamlessly in multiple frequency bands and blocks -- including the capability to handoff between different bands when the user is mobile or to avoid interference. This capability, essential to operating in the fragmented spectrum environment in the U.S., could be used to combine public safety spectrum with that of one or more commercial providers.

The close proximity of the public safety broadband band to the 700 MHz commercial bands will facilitate the combining of spectrum -- especially if both networks employ LTE technology. In addition to providing more capacity, combining spectrum would facilitate the sharing of network infrastructure, which would reduce the cost of deploying the public safety network.

Question: But haven't more than 10 cities filed waivers with the FCC asking to build their broadband networks on just 10 MHz of the 24 MHz?

Answer:

Fourteen cities and/or states (including one commercial provider) have requested FCC approval to begin construction of public safety broadband networks on the existing 10 megahertz of 700 MHz public safety broadband spectrum currently licensed to the Public Safety Spectrum Trust (PSST). These include:

- (1) the City of Boston (Boston);
- (2) the City and County of San Francisco, the City of Oakland, and the City of San Jose (Bay Area);
- (3) the State of New Jersey (New Jersey);

- (4) the City of New York (New York City);
- (5) the District of Columbia (DC);
- (6) the State of New York (NYS);
- (7) the City of Chesapeake, Virginia (Chesapeake);
- (8) the City of San Antonio, Bexar County, and Comal County, Texas (San Antonio);
- (9) the State of New Mexico (New Mexico);
- (10) the State of North Dakota;
- (11) the City of Charlotte, North Carolina (Charlotte);
- (12) several counties and the City of Cedar Rapids, Iowa (Iowa Coalition);
- (13) the County of Maui, County of Hawaii, County of Kauai, City and County of Honolulu and State of Hawaii; and
- (14) New EA, Inc. dba Flow Mobile (Flow Mobile).

North Dakota subsequently withdrew their petition, which was essentially a duplicate of Flow Mobile's petition.

Twelve cities and/or states propose to build an interoperable public safety network on the 10 MHz of spectrum already allocated to public safety. Flow Mobile (and the withdrawn North Dakota petition), also plans to use a six MHz block of the public safety narrowband allocation (769-775 MHz) to build a broadband network with 16 MHz of spectrum. (The North Dakota Department of Emergency Services granted Flow Mobile permission to use the narrowband frequencies that are licensed to the state).

Question: And aren't some cities planning to use VoIP instead of narrowband voice, which means they could use for broadband all of the 24 MHz the 2005 DTV legislation already cleared for them?

Answer:

Several cities and states that applied for a waiver to build broadband networks propose to use the networks for VoIP services. This includes New York City and Boston. New Jersey plans to provide the "full spectrum of multi-media" applications, which would include VoIP capability. If they indeed use VoIP for mission-critical voice, then

they could use the entire 24 MHz public safety allocation for broadband to provide converged services.

New York City believes that the technology to deliver VoIP and PTT voice capabilities on commercial broadband networks exists today; and that near-term technology advances will permit mission critical voice over 4G wireless networks such as LTE, which the City plans to use for their 700 MHz network. If the FCC grants their waiver request, the New York City Police Department intends to conduct a proof-of-concept demonstration of mission critical voice capability on the 700MHz broadband network at the earliest feasible date. The City could then opt to migrate such voice communications to the 700MHz broadband network rather than support two wireless public safety networks – one for voice and one for data.

Written Response of

**Kostas Liopiros
The Sun Fire Group**

to

Questions for the Record from the Honorable Bart Stupak

**House Subcommittee on Communications, Technology and the Internet
Committee on Energy and Commerce
United States House of Representatives**

**September 24, 2009 Hearing on
"A National Interoperable Broadband Network For
Public Safety: Recent Developments"**

1. Is everyone in agreement that some form of dedicated, consistent, federal funding, especially for rural areas and other high costs areas, would be necessary for the construction of the national interoperable network, especially if we're talking about 4G?

Answer:

There is wide agreement that the goals of building and maintaining a public safety broadband network will not be realized unless funding can be found to support those efforts. The Federal government has provided 10 MHz of spectrum at no cost to public safety for the construction of a national interoperable broadband network. Fourteen local governments and/or states (including one commercial provider) have requested Federal Communications Commission approval to begin construction of public safety broadband networks on the 10 MHz of spectrum. The majority of state and local governments, however, have not announced any plans.

In the present economic climate, many state and local governments have cut their budgets and are hard pressed just to maintain their current public safety communications -- let alone deploy a new broadband network. Many small and mid-sized communities -- especially in rural areas -- do not have the funds needed for expensive multi-year projects such as deploying broadband networks, even with the spectrum provided for free.

Some form of dedicated, consistent, federal funding appears necessary to enable the construction of broadband networks, especially in rural and high cost areas where it will be more expensive to deploy a system. However, funding may also be required for the acquisition of radio and other equipment, the development of applications and for the operation and maintenance of public safety broadband networks. Building out a broadband network will take many years and it is important that states and local governments have predictable and reliable sources of funding.